# **Volkswagen AG - Climate Change 2018**

## **C0. Introduction**

## **C0.1**

### **(C0.1) Give a general description and introduction to your organization.**

The Volkswagen Group with its headquarters in Wolfsburg is one of the world’s leading automobile manufacturers and the largest carmaker in Europe. The Group aspires to offer attractive, safe and eco-friendly vehicles that set the global benchmark in their respective classes. We currently offer a total of 524 model variants that emit less than 130 g CO2/km, 405 below 120 g/km, 63 model variants below 100 g/km, 25 model variants already below 95 g/km. (see: DAT-guidance Q2/2018).

In 2017, the number of Group vehicles delivered to customers was 10.741 million in 2017 (10.297 million in 2016).

The share of the world passenger car market amounts to 12,1 percent (11,9 percent 2016).

Group sales revenue in 2017 totaled € 230.682 billion (2016: € 217.267 billion), while earnings after tax amounted to € 11,638 billion (2016: € 5,379 billion).

The Group comprises twelve brands from seven European countries: Volkswagen Passenger Cars, Audi, SEAT, ŠKODA, Bentley, Bugatti, Lamborghini, Porsche, Ducati, Volkswagen Commercial Vehicles, Scania and MAN. The product spectrum ranges from motorcycles to low consumption small cars and luxury vehicles. In the commercial vehicle sector, the products include ranges from pick-ups, buses and heavy trucks.

In addition, the Volkswagen Group offers a wide range of financial services, including dealer and customer financing, vehicle leasing, banking and insurance activities, and fleet management. With MOIA, we have established our own company for new mobility solutions.

Just one year after its inception, MOIA has introduced an integrated ride-pooling concept with a mission: “One Million Cars off the Road”. Starting in 2018, the initiative will provide new mobility options aimed at significantly reducing traffic in cities.

The Group operates 120 production plants worldwide with 642.292 (2016: 626.715) employees (end of year 2017). The Volkswagen Group markets its vehicles in 153 countries.

The future program TOGETHER – Strategy 2025, the biggest change process in the history of Volkswagen, was launched in 2016. The TOGETHER – Strategy 2025 aims to make a significant contribution to achieving a reality in which mobility has fewer negative environmental impacts, and to attaining the United Nations’ Sustainable Development Goals (SDGs). Our goal is to become a role model for environmental protection. We believe the transformation of our core business is the right way to meet these objectives. In coming years, we intend to launch a major electrification initiative and enter new areas of business. Volkswagen welcomes the outcome of the UN’s COP 21 Climate Change Conference. The negotiators agreed an ambitious target of limiting global warming to below 2 degrees Celsius.

We have set ourselves the ambitious goal of reducing levels of the five key environmental indicators per vehicle manufactured – energy and water consumption, waste for disposal, CO2 and VOC emissions – by 45 % by 2025 (compared with the 2010 baseline). By the end of 2017, we achieved a 30,8% reduction in environmental impacts.

## **C0.2**

### **(C0.2) State the start and end date of the year for which you are reporting data.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start date** | **End date** | **Indicate if you are providing emissions data for past reporting years** | **Select the number of past reporting years you will be providing emissions data for** |
| Row 1 | January 1 2017 | December 31 2017 | No | <Not Applicable> |
| Row 2 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 3 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Row 4 | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C0.3**

### **(C0.3) Select the countries/regions for which you will be supplying data.**

Argentina

Austria

Belgium

Bosnia and Herzegovina

Brazil

China

Czechia

Denmark

France

Germany

Hungary

India

Italy

Mexico

Netherlands

Poland

Portugal

Russian Federation

Slovakia

South Africa

Spain

Sweden

Switzerland

Thailand

Turkey

United Kingdom of Great Britain and Northern Ireland

United States of America

## **C0.4**

### **(C0.4) Select the currency used for all financial information disclosed throughout your response.**

EUR

## **C0.5**

### **(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

## **C-TO0.7/C-TS0.7**

### **(C-TO0.7/C-TS0.7) For which transport modes will you be providing data?**

Light Duty Vehicles (LDV)

Heavy Duty Vehicles (HDV)

## **C1. Governance**

## **C1.1**

### **(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

## **C1.1a**

### **(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Chief Executive Officer (CEO) | The Group Board of Management also constitutes the Sustainability Board, which is the highest-ranking sustainability body in the company. The CEO chairs the Group Board of Management and as such is also chairman of the Sustainability Board. The Sustainability Board is informed by the Corporate Sustainability Steering Group about corporate responsibility and sustainability issues (e.g. dealing with climate change risks and opportunities), as well as by the Group CO2 Steering Committee on issues related to product-level GHG emissions and efficiency at least twice a year and takes central decisions. |

## **C1.1b**

### **(C1.1b) Provide further details on the board’s oversight of climate-related issues.**

|  |  |  |
| --- | --- | --- |
| **Frequency with which climate-related issues are a scheduled agenda item** | **Governance mechanisms into which climate-related issues are integrated** | **Please explain** |
| Scheduled – all meetings | Reviewing and guiding strategy  Reviewing and guiding major plans of action  Reviewing and guiding risk management policies  Reviewing and guiding annual budgets  Reviewing and guiding business plans  Setting performance objectives  Monitoring implementation and performance of objectives  Overseeing major capital expenditures, acquisitions and divestitures  Monitoring and overseeing progress against goals and targets for addressing climate-related issues | The Volkswagen Group has created a clear management structure to coordinate the Group’s activities as regards sustainability and CSR. Its highest committee is the Group Board of Management, which acts as the Sustainability Board at the same time. It is regularly briefed by the Corporate Sustainability steering group on issues related to the topics of sustainability and corporate responsibility, as well as by the Group CO2 Steering Committee on issues related to product-level GHG emissions and efficiency. The members of the Group Sustainability steering group include executives from central Board of Management, business areas and representatives of the Group Works Council and the brands. For Volkswagen, climate related issues have a very high strategic and operational significance, for example regarding regulatory requirements and the respective performance of our products, and the ongoing transition process of our Group within our TOGETHER Strategy 2025 and the Roadmap E. Therefore, issues with relation to climate change are scheduled for all meetings (with possible exceptions in case of urgent matters). |

## **C1.2**

### **(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.**

|  |  |  |
| --- | --- | --- |
| **Name of the position(s) and/or committee(s)** | **Responsibility** | **Frequency of reporting to the board on climate-related issues** |
| Environment/ Sustainability manager | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Other C-Suite Officer, please specify (Chief Technology Officer (CTO)) | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |

## **C1.2a**

### **(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.**

I. Description of position within structure:

CTO: The Chief Technical Officer is part of the corporate management of Volkswagen Group. The CTO is reporting directly to the CEO/Chair of the Group Board of Management and regularly updates the Group Board of Management on issues of relevance to sustainability, environmental and energy matters.

Director Environmental Affairs: The Director Environmental Affairs is part of the corporate management of Volkswagen Group. The Director Environmental Affairs is reporting to the Group Board of Management (via the CTO) in his function as Head of the Group Environment and Energy Steering Committee, and regularly updates the Group Board of Management on issues of relevance to environmental and energy matters.

II. Rationale why responsibilities for climate-related issues have been assigned to these positions: The described positions are in charge of coordinating and steering environmental/CO2- activities decided by the Group Board of Management, which also acts as Group Sustainability Board. The size and diverse structure of Volkswagen Group and the importance of the topic demand for dedicated central Group functions below Board level for coordinating and steering climate change-related activities throughout the Group’s companies brands and regions.

III. Specific responsibilities of positions and committees:

CTO: The Group Environment and Energy Steering Committee and Group CO2 Steering Committee, which report to the CTO and fall under his supervision, includes top managers from corporate functions, as well as representatives of the Group Works Council and brands. The tasks surrounding climate change-related issues include defining strategic sustainability goals and position statements, identifying key action areas etc. The CTO as Head of Group Research and Development is responsible for all research and development activities, including those related to low-carbon mobility.

Director Environmental Affairs: The Group-wide management of environmental protection is the responsibility of the Director Environmental Affairs and the Group Environment and Energy Steering Committee, with the support of numerous specialist bodies. Responsibilities include the coordination of our brands and companies regarding the development, implementation and monitoring of environmental policies, targets and metrics, conduct of research on climate change-related topics and fostering internal communication and engagement, e.g. via the regularly held Group Environmental Conferences.

IV. How climate-related issues are monitored by the postions and committees:

CTO: Climate related issues are monitored by the position via regular meetings of the Group Environment and Energy Steering Committee and Group CO2 Steering Committee through internal and external stakeholder engagements, as well as continuous exchange (regular meeting, jour fixes etc.) with the heads of the various Group and brand research and development units, and other Group functions.

## **C1.3**

### **(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

Yes

## **C1.3a**

### **(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.**

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organisation and production processes, eg. CO2-Efficiency. In 2017 Volkswagen employees across the Group submitted a total of 54899 suggestions for improvements. Adopting 59872 suggestions over the reporting period helped substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 124 million. Bonuses worth some €22 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

### **Who is entitled to benefit from these incentives?**

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. Thus we will be able to comply with market specific fuel efficiency/emission regulations, e.g. the EU limit for fleet emissions of new cars of 95 g/km CO2 by 2020. And we are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman (CEO). Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the manager. The compensation of the CEO has two components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of three components: the company bonus, the long term incentive (LTI) and the performance-related bonus. Achieving or missing these goals influences the bonus. The bonus itself is a significant component of the entire income. The Long Term Incentives Scheme for the Management of the Volkswagen Group is based on the aims of the Strategy 2018: customer satisfaction, economic targets and sales figures. This will be aligned with the future program TOGETHER – Strategy 2025.

### **Who is entitled to benefit from these incentives?**

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Energy reduction target

### **Comment**

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### **Who is entitled to benefit from these incentives?**

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency target

### **Comment**

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### **Who is entitled to benefit from these incentives?**

Facilities manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. We are pursuing these goals at each management level. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Facility managers’ targets are to a wide extent aligned with goals of reducing CO2-emissions,energy, water consumption and waste of the Group’s production operations by 45 percent per car by 2025, which is relevant in this context. The compensation of facility managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a huge component of the entire income of each manager.

### **Who is entitled to benefit from these incentives?**

Facilities manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Energy reduction target

### **Comment**

We are aligning the entire Group at any stage of management with the goals of maximum energy- and resource efficiency along the whole product life cycle. We are pursuing these goals at each management level. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Facility managers’ targets are to a wide extent aligned with goals of reducing CO2-emissions,energy, water consumption and waste of the Group’s production operations by 45 percent per car by 2025, which is relevant in this context. The compensation of facility managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a huge component of the entire income of each manager.

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction project

### **Comment**

We are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Energy managers’ targets are aligned with goals concerned with reduction of energy consumption. There is the goal of reducing energy and water consumption, waste and emissions of the Group’s production operations by 45 percent by 2025, which is relevant in this context. In addition, there exists the target of a 40 percent-reduction of greenhouse gas emissions in the supply of energy to production facilities in Germany by 2020. The compensation of the energy managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a huge component of the entire income of each manager.

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

We are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Energy managers’ targets are aligned with goals concerned with reduction of energy consumption. There is the goal of reducing energy and water consumption, waste and emissions of the Group’s production operations by 45 percent by 2025, which is relevant in this context. In addition, there exists the target of a 40 percent-reduction of greenhouse gas emissions in the supply of energy to production facilities in Germany by 2020. The compensation of the energy managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a huge component of the entire income of each manager.

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency project

### **Comment**

We are making progress towards our goal of ensuring that our production plants are 45 percent more environmentally compatible by 2025. We are pursuing these goals at each management level up to the Board chairman. Within the framework of objective agreements the relevant objectives are fixed depending on subjects and responsibility each year. The target achievement is evaluated the following year by the next higher management level. Thus many precise measurable single goals are generated from one superior strategy, with a personal commitment of the affected manager. Energy managers’ targets are aligned with goals concerned with reduction of energy consumption. There is the goal of reducing energy and water consumption, waste and emissions of the Group’s production operations by 45 percent by 2025, which is relevant in this context. In addition, there exists the target of a 40 percent-reduction of greenhouse gas emissions in the supply of energy to production facilities in Germany by 2020. The compensation of the energy managers has three components: There is a fixed remuneration (monthly base salary) and variable remuneration. Variable remuneration consists of the company bonus, the long term incentive (LTI) and the performance related bonus. Achieving or missing the above-mentioned goals influences the performance-related bonus of each manager. The bonus itself is a huge component of the entire income of each manager.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organisation and production processes, eg. CO2-Efficiency. In 2017 Volkswagen employees across the Group submitted a total of 54899 suggestions for improvements. Adopting 59872 suggestions over the reporting period helped substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 124 million. Bonuses worth some €22 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organisation and production processes, eg. CO2-Efficiency. In 2017 Volkswagen employees across the Group submitted a total of 54899 suggestions for improvements. Adopting 59872 suggestions over the reporting period helped substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 124 million. Bonuses worth some €22 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organisation and production processes, eg. CO2-Efficiency. In 2017 Volkswagen employees across the Group submitted a total of 54899 suggestions for improvements. Adopting 59872 suggestions over the reporting period helped substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 124 million. Bonuses worth some €22 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Efficiency project

### **Comment**

Volkswagen sets great store by enabling its employees to come up with ideas and make suggestions for improving work organisation and production processes, eg. CO2-Efficiency. In 2017 Volkswagen employees across the Group submitted a total of 54899 suggestions for improvements. Adopting 59872 suggestions over the reporting period helped substantially to drive up the quality of our products and the efficiency of our processes, reducing costs in the Group by a total of € 124 million. Bonuses worth some €22 million were awarded to staff whose ideas were adopted in acknowledgement of their creativity and involvement in the Company.

## **C2. Risks and opportunities**

## **C2.1**

### **(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **From (years)** | **To (years)** | **Comment** |
| Short-term | 0 | 2 | The time horizon differ from the two risk management processes „regular GRC process“ and “Quarterly Risk Process (RQP). The GRC process is focusing on systemic (inherent) risks and the RQP is focusing on acute and concrete risks and because of that we have two different time horizons. The columns “From” and “To” contains regular GRC-process relevant information. Short-term in the sense of the Quarterly Risk Process (RQO): From 0 up to 1 |
| Medium-term | 2 | 5 | See above; Medium-term in the sense of the Quarterly Risk Process (RQO): From 1 up to 2 |
| Long-term | 5 | 10 | See above; Long-term in the sense of the Quarterly Risk Process (RQO): From 2 up to undetermined |

## **C2.2**

### **(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

## **C2.2a**

### **(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Frequency of monitoring** | **How far into the future are risks considered?** | **Comment** |
| Row 1 | Six-monthly or more frequently | >6 years | The time horizons and monitoring frequencies differ from the two risk management processes „regular Governance, Risk & Compliance (GRC)“ and “Quarterly Risk Process (RQP). The GRC process is focusing on systemic (inherent) risks with a longer time horizon. To ensure that sustainability risks are considered within risk assessments, the Volkswagen list of risk focus areas comprises the separate risk module “sustainability”. The module “sustainability was updated for the process in 2018 on a very detailed level. The quarterly RQP is focusing on acute or imminent material risks, including sustainability and therefore also climate change related risks. Focus is the current financial year respectively the next 24 months. In case of long-term risk which need urgent decision regarding the countermeasures also these risks are part of the quarterly process. |

## **C2.2b**

### **(C2.2b) Provide further details on your organization’s process(es) for identifying and assessing climate-related risks.**

By promptly identifying, accurately assessing, and effectively & efficiently managing the risks & opportunities arising from our business activities we can ensure our sustainable success & the implementation of our Strategy 2025. Our Risk Management approach is designed to follow the internationally recognized standard for Risk Management Systems (RMS) & Internal Control Systems introduced by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

To ensure that sustainability risks are considered within risk assessments, the Volkswagen list of risk focus areas – comprises the separate risk module “sustainability” which was updated on very detailed basis 2018 because of the increased importance of this focus area caused by internal and external requirements.

This allows us to put a specific focus on risks related to climate change and other drivers in the area of sustainability, and determine their significance in relation to other risks.

We use competitive & environmental analyses & market studies to identify risks & opportunities.

In addition to the existing annually risk identification the quarterly risk reporting regarding acute or imminent material risks is implemented.

Company Level: Our regular Governance, Risk & Compliance (GRC) process represents our concept to identify systemic risks (including climate change risks) for the group. They are defined to have an impact which exceeds a pre-defined quantitative threshold. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). All criteria (incl. likelihood) are used to calculate a risk score between 0 and 200 (max.). The criteria of financial damage is divided into 8 sub criteria, from 0€-1Mio.€ up to > 1Bln.€. As important threshold we define a potential gross risk with more than 5 Mio. € financial damage, all these risk must be reported. In addition, the measures taken to manage and control risk are documented at management level.

We consider risk drivers and immaterial valuation to give us risk indication at an early stage. Looking at risk drivers from an aggregated view, this could tell us, for example, if natural disasters are considered to have a higher net impact on our business than in previous years. Annually the lists of risk focus areas are revised with the units. This enables Group GRC to make amendments for any changes.

In total, the list of risk focus areas contains 104 risk focus areas in total which are assigned to 18 higher-Ievel risk modules that are based around the value chain. Our approach ensures that the relevant compliance risk focus areas are an integral part of each risk module.

Overall, more than 130 risks were recorded for the risk module sustainability. All risks are annually published in our internal GRC-report.

For our quarterly risk reporting process we are identifying potential risks by involving all relevant brands and in detail the central functions of the main brand companies. The most important risks are reported to the Group Board of Management.

Asset Level The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity faces the risk of non-compliance with a CO2 emission law, it will attach the risk to a pre-defined focus area within the risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact.

## **C2.2c**

### **(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?**

|  |  |  |
| --- | --- | --- |
|  | **Relevance & inclusion** | **Please explain** |
| Current regulation | Relevant, always included | Rationale: The „current regulation“ is covered through the risk focus area catalogue which is used to identify risks within the regular GRC process. The focus area “Environmental risks arising from operational processes/production” covers among other issues this topic: “Non-compliance with environmental regulations of the law or binding standards”. Product-related regulation is covered in the focus area “Economical risks and/or risks arising from stakeholder requirements”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. All Group companies and units selected from among the entities in the consolidated Group on the basis of materiality and risk criteria were subject to the regular GRC process in fiscal year 2017. Example: Key risk aspects that Volkswagen identified are the compliance with existing fleet emission and consumption regulations in several markets with high importance for the Volkswagen Group, like the EU and China, as well as the implementation of updated test procedures and test cycles (e.g. WLTP test cycle). Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of non-compliance with an existing CO2 emission law, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Emerging regulation | Relevant, always included | Rationale: The „emerging of regulations“ is covered through the risk focus area catalogue which is used to identify risks within the regular GRC process. The focus area “Environmental risks arising from operational processes/production” covers among other issues this topic: “Non-compliance with environmental regulations of the law or binding standards”. Product-related regulation is covered in the focus area “Economical risks and/or risks arising from stakeholder requirements”. Being part of the mentioned risk focus area, we consider risks from emerging regulation as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. All Group companies and units selected from among the entities in the consolidated Group on the basis of materiality and risk criteria were subject to the regular GRC process in fiscal year 2017. Example: Key aspects that Volkswagen identified are the implementation of increasingly stringent fleet emission and consumption regulations in several markets with high importance for the Volkswagen Group, like the EU and China, taking new test procedures and test cycles (e.g. RDE) into account, as well as compliance with approval processes (homologation), which are becoming increasingly more complex and time-consuming and may vary by country. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of non-compliance with an emerging CO2 emission law, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Technology | Relevant, always included | “Technology” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Environmental risks arising from operational processes/production” covers this issue. Risks of rule of violations in the product emergence process are covered in the module “development”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, measures taken to manage & control risk are documented at management level. Background/Risk ex.: Economic success & competitiveness of the Volkswagen Group depend on how successful we are in promptly tailoring our portfolio of products and services to the changing conditions in time. A specific example is the cost-effective implementation of electrified drivetrains. In our risk management, we consider the risk that it may not be possible to develop modules, vehicles or services within the specified timeframe, to the required quality standards, or in line with cost specifications. As we are using an increasing number of modular components as part of our modular toolkit strategy (e.g.our Modular Electrification Toolkit/MEB), it is particularly important when malfunctions do occur to identify the cause and eliminate the malfunctions as quickly as possible. Inclusion in RM: We use competitive & environmental analyses & market studies to identify risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of delayed implementation of technical developments, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements. |
| Legal | Relevant, always included | „Penal relevance“ is one of the four criteria to assess a risk into the two risk management processes; so “legal aspects” are covered and assessed for each potential risk. “Legal” risks are covered through the risk focus area catalogue, especially within the module “Legal”. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Legal risks related to climate change may emerge in connection with the adherence to regulatory requirements. This particularly applies in the case of regulatory vagueness that may be interpreted differently by Volkswagen and the authorities responsible for the respective regulations. This could, for example, apply to regulations around the homologation of new models regarding fuel efficiency standards. At the moment, for example, there is no national or European regulation as to the form in which the WLTP-related CO₂ and consumption data must be declared for cars offered to Volkswagen customers. The implementation across the Group is steered by Group Whole Vehicle Engineering. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of litigation regarding interpretations of existing CO2 emission laws, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Market | Relevant, always included | “Market” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Economical risks and/or risks arising from stakeholder requirements” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: A combination of buyer reluctance as a result of the crisis and increases in some vehicle taxes based on CO2 emissions – as already exist in some form in 20 of 28 EU states, in all of which Volkswagen brands hold an important market share – is driving a shift in demand towards smaller segments and engines in individual markets. We counter the risk that such a shift will negatively impact the Volkswagen Group’s earnings by constantly developing new, fuel-efficient vehicles and alternative drive technologies, based on our drivetrain and fuel strategy. Inclusion in RM: We use competitive and environmental analyses and market studies to identify not only risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of changing market demands due to climate change or related issues, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Reputation | Relevant, always included | The reputation of the Volkswagen Group and its brands is one of the most important assets and forms the basis for long-term business success. Our policy on issues such as integrity, ethics and sustainability (wherein the environmental/climate impact of our products is a material aspect) is in the public focus. One of the basic principles of running our business is therefore to pay particular attention to compliance with legal requirements (including those related to climate change) and ethical principles. Example: The missing of self-defined environmental goals (e.g. for reducing the environmental impacts of our production by 45% until 2025 compared to 2010) could lead to reputational disadvantages in the context of our vision to be a role model for the environment, safety and integrity. Inclusion in RM: The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of changing market demands due to climate change or related issues, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements. |
| Acute physical | Relevant, always included | Rationale: “Acute physical” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks of inadequate management of sustainability aspects” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Particular events beyond our control such as natural disasters may adversely affect production in any global Volkswagen site to a significant extent. As a consequence, bottlenecks or even outages may occur, thus preventing the planned volume of production from being achieved. Inclusion in RM: We assess vulnerability of our sites to increasing weather extremes through regular environmental risks analyses. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Chronic physical | Relevant, always included | “Chronic physical” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks of inadequate management of sustainability aspects” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Climate change-induced variances in the availability of water might affect plant operations at several of Volkswagen’s sites, leading to effects from higher water-related OPEX and CAPEX to temporary reductions of production. Inclusion in RM: We assess vulnerability of our sites to changing climate patterns through regular environmental risks analyses. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |
| Upstream | Relevant, always included | “Upstream” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus areas “Risks arising from procurement practices” and “Risks of violation of human rights and labor rights” covers these issues. Example: The current trends in the automotive industry will also affect the availability of special raw materials, which Volkswagen requires for the use in electrified vehicles. The raw material and demand trend was assessed by Volkswagen last year to enable steps to be taken in a timely manner whenever bottlenecks arise. Inclusion in RM: Supply risks are identified (via the operational risk management) without delay in the procurement function through early warning systems and mitigated immediately by applying appropriate measures. |
| Downstream | Relevant, always included | “Downstream” risks with regards to environmental issues are also covered through the risk focus area catalogue. The focus area “Risks arising from product responsibility” covers these issues. Being part of the mentioned risk focus area, we consider these risks as potential systemic risks for the group, and we cover these in the regular GRC risk monitoring and updating process, using standardized risk assessment questionnaires. Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial). In addition, the measures taken to manage and control risk are documented at management level. Example: Downstream logistics (e.g. regarding vehicles of the Volkswagen brands being delivered to dealerships or final customers) may be affected by weather extremes (e.g. hailstorms, flooding etc.) Inclusion in RM: We assess vulnerability of our value chains to changing climate patterns through regular environmental risks analyses. Information about possible transport risks due to weather, strike or production restrictions are included in weekly updates on production volumes. Based on this information, there is a follow-up of the monthly sales target, including obstacles that may cause short-term sales risks. The identification & documentation of individual risks takes place within the companies/ central departments in scope, based on the centrally provided risk catalogue. If, for example, an entity of the Volkswagen Group faces the risk of production interruptions because of increased weather extremes, it will attach the risk to a pre-defined focus area within the Volkswagen risk management process. The persons in charge to document risks are asked to provide information on risk drivers & details on qualitative valuation elements, e.g. reputational impact. |

## **C2.2d**

### **(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

Events that may give rise to risk are identified and assessed locally in the divisions and at the investees. Countermeasures are decided & introduced immediately, their effects are assessed and the information is incorporated into the planning in a timely manner. The results of the operational risk management process are incorporated into budget planning & financial control on an ongoing basis. Also, the results of risk mitigation measures that have already been taken are incorporated into the monthly forecasts on further business development. This means that the Board of Management also gets an overall picture of the current risk situation via the documented reporting channels, and can prioritize risks & decide on responses on Group level, if required.

Priorization: Each systemic risk reported is assessed using the expected likelihood of occurrence and various risk criteria (financial and nonfinancial) describing the potential impact.

Opportunities: We use competitive & environmental analyses & market studies to identify not only risks but also opportunities with a positive impact on the design of our products, the efficiency with which they are produced, their success in the market and our cost structure. Where they can be assessed, risks and opportunities that we expect to occur are already reflected in our medium-term planning and our forecast: In regular Group Planning Rounds, Group and brands executives define the strategic steps to prioritize & capitalize on opportunities.

Case study physical (following STAR scheme):

Situation: Weather extremes are occuring more frequently and with a higher severity, due to climate change.

Task: Downstream logistics (e.g. regarding vehicles of the Volkswagen brands being delivered to dealerships or final customers) may be affected by weather extremes (e.g. hailstorms, flooding etc.). For instance, hail in July 2013 in Wolfsburg lead to a damage of cars and facilities which was followed by delays concerning the outbound logistics.

Action: A: Information about possible transport risks for the Volkswagen brands are included in weekly updates on production volumes. Based on this information, there is a follow-up of the monthly sales target, including obstacles that may cause short-term sales risks. Mid-term obstacles are reported and addressed in a monthly video conference with all key decision makers and risk holders.

Result: We are thus able to minimize resulting sales risks and related negative impacts for our customers, like delivery delays, from such events.

Case study transitional 1 (following STAR scheme):

S: Volkswagen is facing challenges, but also great opportunities from a regulatory and market trend towards low-carbon mobility.

T: The economic success and competitiveness of the Volkswagen Group depend on how successful we are in promptly tailoring our portfolio of products and services to the changing conditions in time.

A: As a consequence, in 2017, Volkswagen Group’s planning round decided that by the end of 2022, more than EUR 34 billion will be invested the development of electric mobility, autonomous driving, new mobility services and digitalization. The Planning round also determines Group-wide plant and workforce assignment.

R: First series production of electric vehicles on MEB platform in Europe to be launched at Zwickau site.

Case study transitional 2

A combination of buyer reluctance as a result of the crisis and increases in some vehicle taxes based on CO2 emissions – as already exist in some European countries – is driving a shift in demand towards smaller segments and engines in individual markets.

We counter the risk that such a shift will negatively impact the Volkswagen Group’s earnings by constantly developing new, fuel-efficient vehicles and alternative drive technologies, based on our drivetrain and fuel strategy.

## **C2.3**

### **(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

## **C2.3a**

### **(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

### **Identifier**

Risk 1

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

### **Type of financial impact driver**

Policy and legal: Increased costs and/or reduced demand for products and services resulting from fines and judgments

### **Company- specific description**

A risk is constituted by the possibility that the CO2 fleet emissions of the Volkswagen Group may exceed the regulatory norms which are very heterogeneous around the world and are getting more and more ambitious. Most of our worldwide car sales are affected by product efficiency regulations and standards. For Volkswagen, key regulation in this area is the EU CO2-regulation on new car fleet emissions. EU 27/28 regulation will require a value of 95g CO2/km in 2021. Regulations governing fleet fuel consumption are also being developed or introduced outside the EU28, for example in India, Japan, Canada, Mexico, Saudi Arabia, Switzerland, South Korea and Taiwan. Brazil has introduced a fleet efficiency target as part of a voluntary program for granting a tax advantage. To achieve a 30% tax advantage in this country, vehicle manufacturers are required to achieve, among other things average fleet efficiency of around 1.82 megajoules/km by 2017. The fuel consumption regulations in China (being the second largest passenger car market for Volkswagen), which set a fleet target of 6.9 liters/100 km for the period 2012–2015 (Phase III), were continued into Phase IV for the period 2016–2020, with a target of 5.0 liters/100 km at the end of this period. Preparations for legislation up to 2025 (Phase V) have begun. Due to the extension of greenhouse gas legislation in the USA, uniform fuel consumption and greenhouse gas standards will continue to apply in all federal states in the period from 2017 to 2025. The regulations might have implications for Volkswagen's R&D process and its distribution strategy. Specific: The compliance with such regulations is indispensable, because not being able to meet regulations would entail high costs resulting from penalty payments. To avoid penalty payments, Volkswagen invests into new technologies which aim at reducing CO2 emissions per vehicle and km. Back in March 2013, the Volkswagen Group set a benchmark when it became the first and only automaker to commit to the ambitious goal of reducing its European new-car fleet-average emissions to 95 g CO2/km by 2020. Emissions of 95 g CO2/km correspond to average fuel consumption across all vehicle classes and segments of less than 4l/100km (gasoline: 4.1 l, diesel: 3.6 l). Hence, we are sparing no effort to cut the average CO2 emissions of our European new car fleet to 95 gram/km by 2020.

### **Time horizon**

Medium-term

### **Likelihood**

Unlikely

### **Magnitude of impact**

High

### **Potential financial impact**

100000000

### **Explanation of financial impact**

The gross risk's profile (without considering actions in place to mitigate the risk) is characterised by a high rating of the risk criteria. In consequence, the financial loss associated with this risk exceeds €100 million from a group perspective. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment (with regards to the regular GRC process with focus on systemic risks). In the European Union there are graduated penalties in case fuel consumption regulation is not met. These penalties are calculated by multiplying the total number of vehicle registrations by €5 for the first gram of CO2 emissions above the manufacturer- specific average fleet value, €15 for the second gram, and €25 for the third gram. The penalty for exceeding the limit by up to 3 grams thus adds up to €45. Each subsequent gram above the limit will result in a penalty payment of €95.

### **Management method**

Our Powertrain and Fuel Strategy is based on a three-pronged approach consisting of the optimization of conventional powertrains, more intensive use of low-carbon fuels and greater focus on hybrid/all-electric powertrains. We significantly reduced the fuel consumption of our vehicles with conventional drive systems through the use of efficient TFSI, TSI & TDI engines, dual-clutch transmissions, lightweight construction and improved aerodynamics. we currently offer a total of 524 model variants that emit less than 130 g CO2/km, 405 below 120 g/km, 63 model variants below 100 g/km, 25 already below 95 g/km (DAT-guidance Q2/2018) Example: Latest generation of the new EA211 TSI evo engine starts with the 1.5 TSI, initially with outputs of 96 kW and 110 kW. Highlights of the new power unit include the first-time appearance in a production car of an exhaust-gas turbocharger with variable turbine geometry (VTG), the Miller combustion process with a high compression ratio of 12.5:1, a common-rail injection system with pressures of up to 350 bar, an innovative thermal management system, and ACT variable cylinder deactivation technology. These high-technology elements result in efficiency improvements of up to 10% compared with previous-generation engine, and bring us closer to reaching the target of reducing fleet consumption to 95g/km by 2020.

### **Cost of management**

1800000000

### **Comment**

In 2017, we invested €13.1 billion in research and development. The majority of this was spent on efficiency-increasing technologies. Regarding alternative drivetrain technologies, Volkswagen invested over €3 billion in the last 5 years, and plans to triple this amount over the next 5 years. This represents total investments of about €9 billion, or average annual investments of around €1.8 billion in this area.

### **Identifier**

Risk 2

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Policy and legal: Other

### **Type of financial impact driver**

Technology: Research and development (R&D) expenditures in new and alternative technologies

### **Company- specific description**

More than 300 cities and towns around Europe (which is beside China one of the largest market for Volkswagen vehicles) operate or are preparing Low Emission Zones (LEZ). This means that vehicles may be banned or in some cases charged if they enter the LEZ when their emissions are over a set level. Different vehicles are regulated, depending on the local conditions. All LEZs affect heavy duty vehicles (which are offered in Europe by our MAN and Scania brands), some affect diesel vans (as offered inter alia by our by Volkswagen Nutzfahrzeuge brand), others also affect diesel and petrol cars (which is relevant for our varoius passenger car brands). These regulations force car owners to adapt which in turn forces us to adapt likewise and provide appropriate vehicles. Besides, it can be expected that there will be a general change in consumer behaviour and expectations towards higher environmental awareness. Specific: If Volkswagen should not be able to meet certain levels and expectations, there is the risk of decreased demand for vehicles of the above mentioned types, affecting the mentioned Volkswagen brands in particular. This development in particular constitutes the risk of shrinking sales for Volkswagen. It is therefore essential and self-evident to Volkswagen to develop our car fleet, making the vehicles more efficient and thereby meeting existing regulations and consumer demands.

### **Time horizon**

Medium-term

### **Likelihood**

Unlikely

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

100000000

### **Explanation of financial impact**

The gross risk's profile (without considering actions in place to mitigate the risk) is characterised by a high rating of the risk criteria. In consequence, the financial loss associated with this risk exceeds €100 million from a group perspective. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment.

### **Management method**

In 2017, Volkswagen Group has launched the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen will have electrified its entire model portfolio by 2030 at the latest. This means that, by then, there will be at least one electrified version of each of the 300 or so Group models across all brands and markets. This makes Volkswagen the first big mobility group to have put a date on the electrification of its entire fleet. Group brands will bring over 80 new electrified models to customers by 2025, including some 50 purely battery-powered vehicles and 30 plug-in hybrids. Example/case study: With a driving range of more than 200 km, the first electrically powered e-Crafters as a solution for zero-emissions urban delivery situations has been delivered for customer testing in 2017 by Volkswagen Commercial Vehicles. MAN presented an all-electric MAN Lion’s City articulated bus as a modular concept vehicle & a TGS semitrailer tractor with an electric drive for inner-city night deliveries, permitted in all LEZ. As far as conventional combustion engines are concerned, we are continually improving technologies for the efficient purification of exhaust gases and clean combustion in order to reduce harmful emissions even further & comply with future LEZ limits. We are in the process of fitting all Group direct-injection TSI and TFSI engines with petrol particulate filters until September 2018, in line with EU regulations.

### **Cost of management**

20000000000

### **Comment**

"Roadmap E" is also coupled with another increase in capex on e-mobility. Up until 2030, the Group will earmark over €20 billion for direct investments in the industrialization of e-mobility: in new vehicles based on two entirely new electric platforms, in upgrading plants and in training for the workforce, in charging infrastructure, in trading and sales and, last but not least, in battery technology and production.

### **Identifier**

Risk 3

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Physical risk

### **Primary climate-related risk driver**

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

### **Type of financial impact driver**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

### **Company- specific description**

Volkswagen has production facilities in 31 countries, of which some are exposed to varying levels and types of climate related physical risks, such as floods, tropical storms, water scarcity etc., which may cause temporary production downtime/unavailability of facilities. The Impact on facilities may be both direct through physical damage and indirect, where large numbers of workers are affected and therefore unavailable. Also, local infrastructure needed to sustain the automotive production process (transportation, energy, water etc.) may be affected. An example is the Volkswagen plant in Puebla/Mexico: Due to a depletion of the water ressources in the area of Puebla, that is exposed to water stress, ground water levels were decreasing in the last decades. If not managed properly, Volkswagen might have a problem with its water supply in the future which would lead to a stop of production.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

100000000

### **Explanation of financial impact**

The gross risk profile (without considering actions in place to mitigate the risk) shows a difference between the material and immaterial evaluation. While the potential material damage exceeds €100 million, equaling a high impact, the immaterial criteria are rated at a medium level. This is because the resilience against natural catastrophes will not be considered a critical organisation´s ability by investors and customers compared to e.g. compliance with new CO2 regulations. We have entered this lower boundary of the risk impact range as it represents the only available quantification at this moment.

### **Management method**

Volkswagen has established various central and local actions to mitigate risks caused by natural disasters, including emergency and evacuation plans to protect employees, techniques and facilities. As Volkswagen possesses a flexible production system, we assume that no costs due to production downtimes occur. In order to prevent downtime in general, lost output, rejects and reworking, we use the TPM (Total Productive Maintenance) method at our production facilities. We analyzed all production sites regarding water stress, using maplecroft water stress index. Afterwards sites were prioritized depending on fresh water demand, water stress index and questionnaire results. Consequently, measures to improve situation at risk sites are determined. Case study: Mexico, Puebla: Groundwater from "Izta-Popo" surrounding is used as water supply. Volkswagen has funded reforestation of 750 hectares with ~490,000 Alpine conifers since 2008 (promoting formation of top soil & support growth of secondary vegetation.) 47,000 dry wells are also created in hanging terrain on the borders of the project area. In addition, 350 dams are constructed to limit flow speed of the channels. 2.6 Mio. m³ of rain water is collected each year. To date, Volkswagen has supported the project with approximately 2.5 million euros, with the help of 42 suppliers and the water and wastewater operator of Puebla, which are also financially involved. This will ensure the protection of the forest in following year

### **Cost of management**

227000000

### **Comment**

We consider the costs associated with the countermeasures to address this risk to be at a low level compared to the costs caused by countermeasures within other risk focus areas. This statement is based on the assumption, that the Management involvement will in most cases be limited to a group of subject matter experts. For example: Payments for global risk analytics, research and strategic forecasting company, including analyses of environmental risks (water scarcity) and a climate change and environmental risk analytics - costs will be < €50,000. In general, investment for environmental protection at our Volkswagen AG production sites in Germany alone was €17 million in 2017. Operating costs for environmental protection totaled €227 million in Germany alone. We state this figure above to give an estimate of the order of magnitude of environmental protection costs.

### **Identifier**

Risk 4

### **Where in the value chain does the risk driver occur?**

Customer

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Market: Changing customer behavior

### **Type of financial impact driver**

Market: Reduced demand for goods and/or services due to shift in consumer preferences

### **Company- specific description**

The automotive industry faces a process of transformation with far-reaching changes. Electric drives, connected vehicles and autonomous driving are associated with both opportunities and risks for our sales. In particular, more rapidly evolving customer requirements, swift implementation of legislative initiatives and the market entry of new competitors from outside the industry will require changed products, a faster pace of innovation and adjustments to business models. Risks could be arising from a lack of monitoring and identification of environmental framework requirements and trends as well as insufficient adaptation / failure to comply with customer expectations regarding climate change, energy consumption and CO2 emissions. Specific: Changing of Volkswagen customers’ awareness regarding CO2 emission topics may lead to new expectations that influence the customers’ buying decision. This may especially apply to fleet customers with a rising demand for highly efficient vehicles: Due to their high lifetime mileage, cost of ownership of fleet vehicles is largely influenced by fuel efficiency. One indication for this risk is the increasing number of fleet customers expecting us to provide CO2 data of their fleet via the CDP Supply Chain Program, indicating their high interest in fuel- efficient vehicles. We answer the questionnaires since 2013 . A possible failure to comply with these customer expectations may result in a drop of related sales (direct impact), which, given the 2017 market share of Volkswagen Group of around 45% in this customer segment in Germany and 25% in Europe, could significantly affect total sales. Failure to meet these expectations could also affect the company´s reputation (indirect impact); especially in the context of the goal to become a role model for the environment, which the Volkswagen Group set as part of the current Group Strategy Together 2025.

### **Time horizon**

Medium-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

High

### **Potential financial impact**

230000000

### **Explanation of financial impact**

Not only regulatory requirements have to be complied with but requirements from relevant stakeholders should be considered also. Therefore this risk has a high financial impact that exceeds 100 million € from a group perspective. To demonstrate the effect of changing sales: Based on our 2017 financial year figures a decrease of 0.1% in sales would imply a negative effect of approx. €230 million on the Group annual revenue.

### **Management method**

Our fuel and drivetrain strategy is paving the way for sustainable, carbon-neutral mobility. The goal is to increase drive system efficiency with each new model generation – irrespective of whether combustion engines, hybrids, plug-in hybrids, pure electric drives, or fuel cell drive systems are used. Our modular matrix platforms are designed so that different drive systems can be deployed in various combinations and flexibly fitted on production lines in manufacturing facilities around the world. Case sutdies: 1. In 2017 we started the series production of an exceptionally fuel­efficient powertrain for our latest BlueMotion models, the 96 kW 1.5 TSI evo. Thanks to our new “sailing” mode, whereby the engine is switched off while coasting, and other technical innovations, the 1.5 TSI evo can achieve fuel efficiency of as little as 1.0 l/100 km in real­world conditions, depending on the customer’s driving style. 2. Decarbonization begins with the type of fuel used. We are already in a position to use so­called “reduced­carbon” fuels across all our brands. In 2016, Audi expanded its production capacity for sustainably generated e-gas and set a milestone with Germany’s first power-to-gas facility using industrial-scale biological methanation. Furthermore, Audi unveiled another g-tron model that can be operated with either climate-friendly Audi e-gas or natural gas (CNG) or petrol. Thus, we give customers a broad choice of ecological and economic fuel and drivetrain options.

### **Cost of management**

20000000000

### **Comment**

We are making massive investments in the mobility of tomorrow – but without neglecting current technologies and vehicles that will continue to play an important role for decades to come. This is why we are putting almost €20 billion into our conventional vehicle and drive portfolio in 2018, with a total of more than €90 billion scheduled over the next five years.

## **C2.4**

### **(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

## **C2.4a**

### **(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

### **Identifier**

Opp1

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

### **Type of financial impact driver**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

### **Company- specific description**

The car industry worldwide is highly affected by CO2 regulations. Regulatory requirements can generally be seen as an incentive for innovation. Most of our worldwide car sales are affected by product efficiency regulations and standards. For Volkswagen, key regulation in this area is the EU CO2-regulation on new car fleet emissions. EU 27/28 regulation will require a value of 95g CO2/km in 2021. Regulations governing fleet fuel consumption are also being developed or introduced outside the EU28, for example in India, Japan, Canada, Mexico, Saudi Arabia, Switzerland, South Korea and Taiwan. Brazil has introduced a fleet efficiency target as part of a voluntary program for granting a tax advantage. To achieve a 30% tax advantage in this country, vehicle manufacturers are required to achieve, among other things average fleet efficiency of around 1.82 megajoules/km by 2017. The fuel consumption regulations in China (being the second largest passenger car market for Volkswagen), which set a fleet target of 6.9 liters/100 km for the period 2012–2015 (Phase III), were continued into Phase IV for the period 2016–2020, with a target of 5.0 liters/100 km at the end of this period. Preparations for legislation up to 2025 (Phase V) have begun. Due to the extension of greenhouse gas legislation in the USA, uniform fuel consumption and greenhouse gas standards will continue to apply in all federal states in the period from 2017 to 2025. The regulations might have implications for Volkswagen's R&D process and its distribution strategy. Specific: CO2 regulations will increasingly shape the markets for Volkswagen’s products via a growing demand for low-carbon mobility options like electric mobility. Globally, Volkswagen sold over 145.000 vehicles equipped with eco friendly drives (gas, hybrid, all electric), which is still only 1.4% of our total sales, but represents a 12% increase over 2016. This shows the dynamic development of this market segment, which we expect to generate significant additional revenues in the medium term.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

High

### **Potential financial impact**

58000000000

### **Explanation of financial impact**

We intend to sell between two and three million Battery-Electric Vehicles (BEVs) per year by 2025 – equivalent to around 20–25% of the Group’s expected annual total unit sales. To give a rough estimate of the order of magnitude, we have entered the equivalent of 25% of our 2017 total revenue (€230 billion). Actual effects may differ.

### **Strategy to realize opportunity**

With regard to vehicles and drivetrains, we place special emphasis on e-mobility. In 2017, the Volkswagen Group has launched the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen is electrifying its entire model portfolio, with full coverage to be reached by 2030 at the latest. This means that, by then, there will be at least one electrified version of each of the 300 or so Group models across all brands and markets. This makes Volkswagen the first big mobility group to have put a date on the electrification of its entire fleet. The Group brands will bring a total of over 80 new electrified models to customers by 2025, including some 50 purely battery-powered vehicles and 30 plug-in hybrids. Example / case study: The battery accounts for a significant share of the added value for an electric vehicle. At our Center of Excellence in Salzgitter, we are consolidating responsibility for the development, procurement and quality assurance of all the Group’s battery cells. Operations there have already started in 2017, with an initial 100-strong workforce. The Volkswagen brand is also setting up its first pilot line there to accumulate production know-how. Preparations for pilot production from 2019 onwards are progressing as planned.

### **Cost to realize opportunity**

20000000000

### **Comment**

"Roadmap E" is also coupled with another increase in capex on e-mobility. Up until 2030, the Group will earmark over €20 billion for direct investments in the industrialization of e-mobility: in new vehicles based on two entirely new electric platforms, in upgrading plants and in training for the workforce, in charging infrastructure, in trading and sales and, last but not least, in battery technology and production

### **Identifier**

Opp2

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Ability to diversify business activities

### **Type of financial impact driver**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

### **Company- specific description**

Mobility is one of the key conditions for economic growth. The latest challenge is to cater to the growing demand for mobility despite diminishing resources and, in the process, reduce its negative effects on the environment. Holistic mobility concepts have to be efficient, sustainable, customer-oriented and, above all else, designed in such a way that they are accessible anytime and anywhere. We at Volkswagen are developing ground-breaking mobility solutions for our customers that will shape the future in this area. We do not limit our focus to automotive mobility, but take in other modes of transport as well and examine structural issues such as urbanization, urban development and the quality of transport infrastructure. More specific: By the year 2050, the United Nations predicts that the world’s population will have grown to more than 9.5 billion people. It estimates that the global urban population will double, with more than two thirds of people living in cities. This will place increasing strain on urban mobility systems throughout the world. All urban stakeholders will therefore need to make more effective use of limited urban space, e.g. by using shared transportation and multimodal mobility services. Volkswagen is well prepared due to our early engagement in national and international initiatives and our own Mobility Research Department. In this context, Volkswagen wants to set standards with integrated, intelligent mobility solutions and innovative transport systems. To this end, we are opening up new fields of business and developing novel business models. One objective of our Group future program TOGETHER Strategy 2025 is to make Volkswagen one of the three largest providers of efficient, comfortable mobility services worldwide by 2025. The portfolio will include mobility on demand and vehicle on demand services and will be implemented across all brands.

### **Time horizon**

Long-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

1000000000

### **Explanation of financial impact**

The Volkswagen Group intends to generate a substantial share of its sales revenue from this new business by 2025. In the long term, Volkswagen aims to generate billions in earnings in the mobility services business. We have provided a possible future annual revenue of EUR 1 billion as a reference for the estimated order of magnitude.

### **Strategy to realize opportunity**

One building block of our Strategy TOGETHER 2025 is the establishment of a cross-brand mobility solutions business: With the Volkswagen Group’s new company for mobility services, MOIA, we are laying the foundations of lasting success in tomorrow’s world of mobility – across the Group, and across all our brands. MOIA develops and markets its own mobility services, either independently or in partnership with cities and existing transport systems. In parallel with MOIA, the brands continue to move forward with their own specific services. Example / case study: Just one year after its inception, in 2017 MOIA has introduced an integrated ride-pooling concept with a mission: “One Million Cars off the Road”. MOIA has been testing its service in Hanover since October 2017 and is continuously developing the various components based on real-world operation. Thanks to the MOIA ridesharing vehicle we introduced in December 2017, we can now cover the entire ride-pooling value chain – or just individual links in the chain, as required.

### **Cost to realize opportunity**

300000000

### **Comment**

The Volkswagen Group opens the way for new mobility concepts with a significant USD 300 million stake in Gett. On the map with over 100 cities worldwide, Gett is one of the fastest growing ride hailing providers in the mobility-on-demand area. Based on a joint strategy, according on-demand mobility services will be further expanded.

### **Identifier**

Opp3

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Resilience

### **Primary climate-related opportunity driver**

Participation in renewable energy programs and adoption of energy-efficiency measures

### **Type of financial impact driver**

Other, please specify (Reduced operating costs)

### **Company- specific description**

Our Group has a long tradition of commitment to environmental protection. It is firmly embedded in our TOGETHER – Strategy 2025 as one of our four corporate objectives. As one of the world’s leading providers of sustainable mobility, we also want to become an Environmental Role Model. We are working toward this long¬term goal by taking responsibility for the environment. Specific: Besides wider social benefits, which are difficult to quantify, our sustainability efforts can also lead to reduced operational costs, e.g. in the case of energy efficiency and emission reduction activities. Reduction of the direct energy consumption per vehicle produced (which was at approx. 2.000 kWh/vehicle in 2017, as opposed to approx. 2.500 kWh in 2010 across all of Volkswagen’s brands and factories and including electricity, heat and fuel consumption) directly correspond to cost savings for Volkswagen.

### **Time horizon**

Current

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium

### **Potential financial impact**

37000000

### **Explanation of financial impact**

In 2017, The Volkswagen Group has implemented over 1500 documented measures and activities that save more than 180 kt CO2e per year, and will lead to direct annual cost savings of over €37 million.

### **Strategy to realize opportunity**

The reduction in environmental impacts across the Group is the result of specific environmental programs by the individual brands, including: Think Blue. Factory. – Volkswagen Passenger Cars and Volkswagen Commercial Vehicles; ultra-strategy – Audi; Green Factory – ŠKODA; ECOMOTIVE Factory – SEAT; Environmental Factory – Bentley; Resource-efficient Production – Porsche; Blue Rating – Scania; Climate Strategy – MAN. We encourage close integration and communication between the brands worldwide in order to create synergies, for example with our Environment Task Force. We record and catalog environmental measures in an IT system and make these available for Group-wide sharing of best practices. Example: 1. In 2017, we installed new air handling units with heat recovery systems at the Hanover plant of Volkswagen. This saves electricity as well as heat energy and accounts for a CO2 reduction of about 5000 tons . 2. In 2016, the first industrial combined heat and power plant in the greater Shanghai metropolitan area went into operation at Volkswagen’s Chinese plant in Anting, in the form of a MAN CHP plant. The power plant supplies the site with 26 MW of electricity and 60 t/h of steam. This covers most of the energy and all of the steam requirements of Car Plant 3, meaning that Anting is now making annual savings of around 95,000 MWh of energy and 59,300 t of CO2.

### **Cost to realize opportunity**

40000000

### **Comment**

In 2017, we invested more than €40 million in documented emission reduction activities across our global operations.

## **C2.5**

### **(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted | Description of impact: As part of a Group-wide initiative – and with a view to the legal regulations on emissions – we are currently developing a forward-looking vehicle and drivetrain portfolio: to achieve our goal of sustainable mobility, we have set ourselves the objective of increasing drive system efficiency with each new model generation – irrespective of whether the means of propulsion is a combustion engine, a hybrid, a plug-in hybrid, a purely electric drive, or a fuel cell drive system. As of 2017, the Volkswagen Group is launching the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen will have electrified its entire model portfolio by 2030 at the latest. This means that, by then, there will be at least one electrified version of each of the 300 or so Group models across all brands and markets. This makes Volkswagen the first big mobility group to have put a date on the electrification of its entire fleet. The Group brands will bring a total of over 80 new electrified models to customers by 2025, including some 50 purely battery-powered vehicles and 30 plug-in hybrids. Magnitude: Impacts in this area may be considered highly significant, and affect the entire Volkswagen group, with all brands. We intend to sell between two and three million Battery-Electric Vehicles (BEVs) per year by 2025 – equivalent to around 20–25% of the Group’s expected annual total unit sales. |
| Supply chain and/or value chain | Impacted for some suppliers, facilities, or product lines | Description of impact: (Transition risks/opps.): We substantially intensified our supplier checks in the reporting year with regard to sustainability. We commissioned sustainability audits from an external service provider at 321 suppliers. In 60 cases, the findings resulted in an action plan to improve the suppliers’ sustainability performance. In addition to these local audits, more than 25,000 supplier locations submitted a self-declaration on the topic of sustainability. In around 1,500 cases, their sustainability performance was improved through specific measures. (Physical risks): Systematic avoidance of bottlenecks was a constant focus of procurement in the reporting year. Natural disasters such as tornadoes impacted the availability of upstream materials. Magnitude: We were able to avoid adverse impacts on the Group’s production thanks to Group-wide management of capacity and demand. Impacts can therefore be considered as non-significant from a Group perspective. |
| Adaptation and mitigation activities | Impacted | Description of impact: Protecting the environment is one of four goals firmly anchored in our future program TOGETHER – Strategy 2025. As a world-leading provider of sustainable mobility, we want to be a role model on environmental issues. We are working towards this goal, taking responsibility for the environment every single day. To this end, we have defined the following target areas: 1. To continuously improve our carbon footprint; 2. To continuously reduce harmful emissions; 3. To continuously reduce resource consumption We use the decarbonization index (DCI) as a strategic indicator to document our progress. This measures the products’ CO2 emissions along the entire value chain. The DCI is calculated from the ratio of the carbon footprint to the number of vehicles produced. It encompasses both direct and indirect CO2 emissions at the individual production sites (Scope 1 and 2) as well as all further CO2 emissions over the life cycle of the vehicles sold – from the extraction of raw materials, to vehicle use and final disposal (Scope 3). The DCI thus enables transparent, comprehensive tracking of progress toward climate-friendly mobility. We are currently defining the DCI target figures for 2025 together with the Volkswagen Group brands. These targets should then contribute to the achievement of the two-degree target in the Paris Agreement adopted at the United Nations Climate Change Conference in late 2015. Magnitude: Volkswagen is making significant investments in mitigation activities. At our Wolfsburg site alone, we will invest €400 million in the conversion of the existing power plants to natural gas firing. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars. For the entire Group, this translates into a global CO2 reduction of 15 percent. |
| Investment in R&D | Impacted | Description of impact: The Volkswagen Group has launched a comprehensive electrification offensive in the form of Roadmap E. By 2025, we plan to offer our customers around the world more than 80 new electric models, including some 50 purely battery-driven vehicles and 30 plug-in hybrids. By 2030, the Volkswagen Group aims to electrify its entire model portfolio – from high-volume models to premium vehicles. This will mean offering at least one electric version of each of our approximately 300 models across all Group brands. We are therefore planning to invest more than €20 billion in industrializing e-mobility by 2030, involving, amongst other things, the development of two new electric platforms for vehicles with a range of up to 600 km. Examples include the Volkswagen I.D. family of concept vehicles, the Audi e-tron and Porsche’s Mission E. We are also intensively researching options for producing fuels from renewable electricity, enabling carbon-neutral operation of combustion engines. Projects such as Audi e-gas (power-to-gas) and SEAT’s SMART Green Gas (waste-to-gas) are examples of our commitment in this area. Last but not least, we are working under Audi’s leadership to make fuel cell technology ready for market. Magnitude: R&D investments as response to the identified risks & opportunities can be considered highly significant in absolute terms, as well as in relation to overall R&D expenses. These amounted to €13 billion in 2017, €5 billion of which were capitalized development costs. |
| Operations | Impacted | Description of impact: One element of our production strategy is the environmentally exemplary production initiative. This involves us working on four key issues in the period leading up to 2025: Setting and achieving ambitious environmental targets for production, Developing a long-term vision for environmental targets in production and rolling it out across the Group, Strengthening employees’ environmental awareness and integrating relevant environmental aspects into processes, Achieving top positions in renowned environmental rankings. In this context, the Volkswagen Group has set itself the goal of reducing the five key environmental indicators of energy and water consumption, waste for disposal, and CO2 and VOC emissions in production by 45% for each vehicle produced by 2025 – starting from 2010 levels. This objective applies to all of the Group’s production locations and is derived from our environmental requirements for production processes, which are anchored in the Group’s environmental principles. Magnitude: We anticipate a significant, group-wide impact by the identified risks and opportunities. In Germany alone, investment for environmental protection at our Volkswagen AG production sites was €17 million € in 2017. Operating costs for environmental protection were about €227 million, 17.5 % of that for air pollution control and 5.5% for climate protection. This is partly outweighed by the cost savings reached by energy efficiency measures. |
| Other, please specify | Impacted | Sustainability Management and stewardship: Description: As part of its efforts to continuously improve and expand its sustainability management, the Volkswagen Group appointed an international Sustainability Council in 2016 made up of renowned experts from the academic world, politics and society. The members of the council establish their own working methods and areas of focus independently and consult with the Board of Management, senior managers and the employee representatives regularly for the purposes of consultation, exchanging information and initiating action. The key issues in 2017 were the challenges created by global CO2 emissions and the regulatory requirements to be met post-2025, as well as the Company’s transformation process. Magnitude: The Volkswagen Group is initially providing €20 million in funding for projects proposed and promoted by the Sustainability Council for the years 2017 and 2018. The first projects relate to innovation and cultural change in the area of sustainable mobility, an international crisis prevention initiative as a result of climate change and an academic study on the future shape of the transport and climate policy framework. |

## **C2.6**

### **(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.**

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted | We expect sales of battery-electric vehicles to grow exponentially over the coming years; following our strategy TOGETHER 2025, we project that they will make up between 20 to 25% of total sales by 2025. Magnitude: The described increase in sales will constitute an equally significant part of our revenue. |
| Operating costs | Impacted for some suppliers, facilities, or product lines | 1. Transition risks/regulatory: In the EU, there is a new, more time-consuming test procedure for determining pollutant and CO2 emissions as well as fuel consumption in passenger cars and light commercial vehicles known as the Worldwide Harmonized Light-Duty Vehicles Test Procedure (WLTP). This affects all Volkswagen passenger car brands, which have to fulfill WLTP homologation for all new vehicles sold from September 2018. Magnitude: This leads to significantly higher costs and workload for homologation for each model. As the Group brands are offering several hundred model variants, this may imply significant costs. 2. Transition opportunities (energy efficiency/environmental protection): Many measures strengthening environmental protection are associated with additonal operating costs. Operating costs for environmental protection in Germany alone were about €227 million. This is partly compensated by the fact that, for example, energy efficiency measures contribute to cost savings. In 2017 alone The Volkswagen Group has implemented over 1500 documented measures and activities that save more than 180 kt CO2e per year, and will lead to direct annual cost savings of over €37 million. |
| Capital expenditures / capital allocation | Impacted | The Volkswagen Group is launching the most comprehensive electrification initiative in the global automotive industry with its "Roadmap E": Volkswagen will have electrified its entire model portfolio by 2030 at the latest. "Roadmap E" is coupled with another increase in capex on e-mobility. Up until 2030, the Group will earmark over €20 billion for direct investments in the industrialization of e-mobility: in new vehicles based on two entirely new electric platforms, in upgrading plants and in training for the workforce, in charging infrastructure, in trading and sales and, last but not least, in battery technology and production. In our current planning for 2018, the majority of capex (investments in property, plant and equipment, investment property and intangible assets, excluding capitalized development costs) will be spent on new products and the continued rollout and further development of the modular toolkit. The focus is on the electrification and digitalization of our vehicles, in particular through the development of the Modular Electric Toolkit (MEB). This underlines that the described risks and opportunities have a highly significant impact on planned capital expenditures. |
| Acquisitions and divestments | Impacted for some suppliers, facilities, or product lines | The Volkswagen Group opens the way for new mobility concepts with a significant USD 300 million stake in Gett. On the map with over 100 cities worldwide, Gett is one of the fastest growing ride hailing providers in the mobility-on-demand area. Based on a joint strategy, according on-demand mobility services will be further expanded. Magnitude: In the context of direct investments in own operations that Volkswagen has announced (see capital expenditures), the volume has a low significance. |
| Access to capital | Not impacted | We aim to finance the investments in our Automotive Division from our own capital resources and expect cash flows from operating activities to exceed the Automotive Division’s investment requirements. |
| Assets | Impacted | Invested capital will increase in 2018 as a result of investments in new models, in the development of alternative drives and modular toolkits and in future technologies. This trend will likely continue based on the capital expenditure planning described above: Up until 2030, the Group will earmark over €20 billion for direct investments in the industrialization of e-mobility: in new vehicles based on two entirely new electric platforms, in upgrading plants and in training for the workforce, in charging infrastructure, in trading and sales and, last but not least, in battery technology and production. Magnitude: The potential magnitude is significant, illustrated by our plans that 16 locations around the globe are to produce battery powered vehicles by the end of 2022. |
| Liabilities | Not yet impacted | Liabilities may arise for Volkswagen from possible penalties for exceeding the market-specific regulatory norms for fleet emissions limits. Specific/timeframe: For Volkswagen, key regulation in this area is the EU CO2-regulation on new car fleet emissions. EU 27/28 regulation will require a value of 95g CO2/km in 2021. Magnitude: In the European Union there are graduated penalties in case fuel consumption regulation is not met. These penalties are calculated by multiplying the total number of vehicle registrations by €5 for the first gram of CO2 emissions above the manufacturer- specific average fleet value, €15 for the second gram, and €25 for the third gram. The penalty for exceeding the limit by up to 3 grams thus adds up to €45. Each subsequent gram above the limit will result in a penalty payment of €95. Depending on the deviation from the target value, penalties may be significant. Hence, we are sparing no effort to cut the average CO2 emissions of our European new car fleet to 95 gram/km by 2020. |
| Other | Not impacted | We have not identified other impacts on the financial planning process which could be disclosed. |

## **C3. Business Strategy**

## **C3.1**

### **(C3.1) Are climate-related issues integrated into your business strategy?**

Yes

## **C3.1a**

### **(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?**

Yes, qualitative and quantitative

## **C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)**

### **(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.**

Yes

## **C3.1c**

### **(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.**

i) Climate change, resource availability and urbanization are among the major global challenges facing us in the Volkswagen Group as one of the biggest car producers. Our TOGETHER – Strategy 2025 aims to make a significant contribution to ensuring that mobility has less impact on the environment. We also want to help attain the United Nations Sustainable Development Goals (SDGs). Our aim is to become a role model for environmental protection. We believe the transformation of our core business is the right way to meet these objectives.

Our Group has a long tradition of commitment to environmental protection. It is firmly embedded in our TOGETHER – Strategy 2025 as one of our four corporate objectives. As one of the world’s leading providers of sustainable mobility, we also want to become an Environmental Role Model. We are working toward this long-term goal by taking responsibility for the environment – day in, day out. We welcome the ratification of the Paris Agreement on climate change, which aims to limit global warming to less than 2°C above pre-industrial levels.

With this in mind, we have defined the following targets:

· To continuously improve our carbon footprint

· To continuously reduce our pollutant emissions

· To continuously reduce our resource consumption

In our 2025 environmental program, two indicators record the progress we are making toward attaining two strategic objectives:

· In this context, we define the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incorporates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end-of-life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate-friendly mobility. We are currently defining DCI target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two-degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.

· Environmental impact reduction production per unit (UEP) was defined as part of our environmental production strategy, and target values were specified for the Group and brands. By 2025, we intend to reduce production-related environmental impacts per vehicle by 45% compared with 2010. UEP includes the consumption of energy and water, emissions of CO₂ and VOCs, as well as the volume of waste. By the end of 2017, we achieved a 30.8% reduction in environmental impacts.

ii) The most substantial business decision made during the reporting year is the introduction of our Roadmap E: As a core element of our TOGETHER – Strategy 2025, we are launching the largest electrification drive in the automotive industry. By 2025, we want to become a world leader in e-mobility. To do so, we will make more than 80 new, electric models available for purchase to our customers around the world, including some 50 all-electric vehicles and 30 plug-in hybrids. We are assuming that by 2025, one in every four new vehicles manufactured by our Group around the world will run on all-electric powertrains. Depending on how the market develops, this could be as many as 3 million electric vehicles per year. In subsequent years, this figure would then increase in leaps and bounds. By 2030, we intend to electrify our entire model range. By this deadline at the latest, there will be at least one electrically powered version of each of the 300 or so models manufactured by the Group, across all brands and markets. This makes us the first major mobility company to commit to a specific deadline for the full electrification of its fleet.

Roadmap E anticipates that we shall make more than €20 billion available for direct investments in the industrialization of e-mobility by 2030 – including investment in vehicles based on newly developedelectric platforms with ranges of up to 600 km (375 miles).

Several aspects influenced this business decision: The need to mitigate climate change in a below 2° C scenario, fleet emisson regulations in our main markets like China, EU, USA and South America, but as well the opportunities from the growing market for alternative drivetrains like electric mobility .

## **C3.1d**

### **(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.**

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| 2DS | How scenarios were identified and adapted: Volkswagen is a stakeholder in the IEA Mobility Model (MoMo) working group, and as such has contributed to the development of the model, and is using the model data and assumptions in various contexts. MoMo uses the various IEA ETP scenarios, including the 2DS as a Below-2-degree pathway. Scenario prognoses on a regional level, which are available via the MoMo model, were matched with existing regional/market-specific Volkswagen data and forecasts regarding production output, energy consumption and vehicle lifecycle data, to develop a Volkswagen-specific model, taking into account the specific regional characteristics of production, sales, and vehicle operation. We used interpolation and pro-rating methods to match different data aggregation levels and temporal resolutions. A sensitivity analysis was conducted to identify decisive factors. Time horizons: We have conducted analyses up to 2050, as this is the maximum timeframe covered by the model at the time of the analysis. We have then focused on the year 2025, which marks the time horizon of our Group Strategy TOGETHER 2025, and also is the target year of several internal KPIs. Areas of organization: Scenario analysis focused on 1. Production: energy consumption of production, prognosed grid energy mix, related GHG emissions; 2. Sales/technology: Prognosed sales development and drivetrain shares of passenger vehicles 3. Impact of products: Prognosed WTW GHG emissions of new cars; 4. Materials procurement: Amount of procured materials, related upstream GHG emissions. Summary of results: Regarding production-related emissions, the analysis showed that a significant decrease of emission intensity per car produced is necessary to be compliant with the UN climate target, especially in the context of increasing sales. Regarding the development of the vehicle sector, the analysis showed that electrification will gain significant importance, but combustion engines retain a considerable market share over the next decade even under a 2-degree-compliant scenario. How results informed our strategy: Regarding production-related emissions, we are currently working on medium to long-term reduction targets that achieve a reduction compliant with the UN climate agreement. In parallel, we invest in the modernization of our production facilities to achieve our Group target to become a role model for the environment. The market and product related findings support and confirm our strategic decision taken with the Group Strategy 2025 to massively invest both in electric mobility (as specified in our Roadmap E) as well as in efficiency improvements of the combustion drivetrain. Example/case study: To be able to achieve the decrease in production-related GHG emissions that resulted as necessary for compliance with the UN climate agreement, Volkswagen decided to convert the currently coal-fired power plants at our Wolfsburg site to natural gas firing, for this we will invest €400 million. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars. For the entire Group, this translates into a global CO2 reduction of 15 percent. |

## **C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e**

### **(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization’s low-carbon transition plan.**

1. Powertrain and fuel strategy

For us, effective environmental protection means complexity and consistency in equal measure. This is why we are focusing on the development of environmentally friendly products by ensuring that our powertrain and fuel strategy is fundamentally sustainable.

Roadmap E, which we adopted in 2017 as the centerpiece of our electrification drive, will be supported by innovative solutions for modern combustion engines and alternative drive systems. Research into sustainable mobility solutions and digitized business models is the final element in our strategic realignment. We look at the entire life cycle from product development through production, from logistics – including the supply chain – through the use phase, right through to recycling (LifeCycle Thinking). At every stage, we take a holistic approach to analyzing environmentally relevant factors such as energy and CO₂ emissions, material manage­ment and recycling concepts, water management, recycling solutions, pollutants and nature conservation, in order to meet our ambitious decarbonization, pollutant reduction and resource conservation targets. We ensure that our progress toward meeting these targets is visible by participating in ratings and rankings.

2. Action plan – products and production

In our 2025 environmental program, two indicators record the progress we are making toward attaining two strategic objectives:1. In this context, we define the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incor­porates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end­of­life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate­friendly mobility. We are currently defining DCI target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two­degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.2. Environmental impact reduction production per unit (UEP) was defined as part of our environmental production strategy, and target values were specified for the Group and brands. By 2025, we intend to reduce production­related environmental impacts per vehicle by 45% compared with 2010. UEP includes the consumption of energy and water, emissions of CO₂ and VOCs, as well as the volume of waste. By the end of 2017, we achieved a 30.8% reduction in environmental impacts.

## **C4. Targets and performance**

## **C4.1**

### **(C4.1) Did you have an emissions target that was active in the reporting year?**

Intensity target

## **C4.1b**

### **(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

### **Target reference number**

Int 1

### **Scope**

Scope 1 +2 (market-based)

### **% emissions in Scope**

98.6

### **% reduction from baseline year**

25

### **Metric**

Other, please specify (Kilograms CO2 per vehicle produced)

### **Base year**

2010

### **Start year**

2012

### **Normalized baseline year emissions covered by target (metric tons CO2e)**

1095.9

### **Target year**

2018

### **Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

### **% achieved (emissions)**

100

### **Target status**

Underway

### **Please explain**

The production related intensity target (expressed as kg CO2 per vehicle produced) for 2018 has already been achieved in 2017. A new target will be set for 2025.

### **% change anticipated in absolute Scope 1+2 emissions**

9

### **% change anticipated in absolute Scope 3 emissions**

0

### **Target reference number**

Int 2

### **Scope**

Scope 3: Use of sold products

### **% emissions in Scope**

43

### **% reduction from baseline year**

42.8

### **Metric**

Other, please specify (Grams CO2 per km)

### **Base year**

2006

### **Start year**

2014

### **Normalized baseline year emissions covered by target (metric tons CO2e)**

166

### **Target year**

2020

### **Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

### **% achieved (emissions)**

62

### **Target status**

Underway

### **Please explain**

We are sparing no effort to cut the average CO2 emissions of our European new car fleet to 95 gram/km by 2020 (passenger cars and light duty vehicles). Target achievement is consequently pursued via continuous development and provision of more and more fuel efficient and CO2 emission reduced vehicles. The value for “% of emissions in scope” is related to the sum of our scope 3 inventory published by Volkswagen for the first time in 2013. For the base year, an equivalent proportion is assumed. Absolute emissions are assessed based on CO2/km, total vehicle sales and an estimated lifetime km.

### **% change anticipated in absolute Scope 1+2 emissions**

0

### **% change anticipated in absolute Scope 3 emissions**

-18

## **C4.2**

### **(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.**

## **C4.3**

### **(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

## **C4.3a**

### **(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of projects** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 932 | 91515 |
| To be implemented\* | 323 | 71557 |
| Implementation commenced\* | 266 | 793161 |
| Implemented\* | 1569 | 183546 |
| Not to be implemented | 452 | 78768 |

## **C4.3b**

### **(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

### **Activity type**

Energy efficiency: Building fabric

### **Description of activity**

Other, please specify (Insultation, heat protection, etc.)

*Various building fabric measures, incl. insulation, heat protection etc.*

### **Estimated annual CO2e savings (metric tonnes CO2e)**

761

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

206700

### **Investment required (unit currency – as specified in CC0.4)**

117700

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

This is the sum of 28 individual measures.

### **Activity type**

Energy efficiency: Building services

### **Description of activity**

Other, please specify (Lighting, HVAC, compressed air, etc.)

*Various building services, incl. lighting, HVAC, compressed air etc.*

### **Estimated annual CO2e savings (metric tonnes CO2e)**

86343

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

16991600

### **Investment required (unit currency – as specified in CC0.4)**

18580800

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 813 measures. For some measures, the investment costs were counted separately and missing in the listed data. So the payback period is higher than listed here.

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Other, please specify (Temperature control, heat losses etc.)

*Various process efficiency measures, incl. temperature control, heat recovery etc.*

### **Estimated annual CO2e savings (metric tonnes CO2e)**

48179

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

9779900

### **Investment required (unit currency – as specified in CC0.4)**

15027300

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 424 measures. For some measures, the investment costs were counted separately and missing in the listed data. So the payback period is higher than listed here.

### **Activity type**

Low-carbon energy purchase

### **Description of activity**

Other, please specify (Purchases of GoO-backed renewable energy)

### **Estimated annual CO2e savings (metric tonnes CO2e)**

32178

### **Scope**

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

0

### **Investment required (unit currency – as specified in CC0.4)**

72800

### **Payback period**

>25 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

This is only one measure accounted for in the measure system. Other purchase of renewable energy was not accounted for within the measure management system.

### **Activity type**

Other, please specify (Optimization of el. infrastructure)

*Various Improvements covering optimization of electricity infrastructure & use: reduced losses, base load approaches, line switch off, new control systems*

### **Description of activity**

<Not Applicable>

### **Estimated annual CO2e savings (metric tonnes CO2e)**

16084

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

10214200

### **Investment required (unit currency – as specified in CC0.4)**

7294600

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

Sum of 303 measures. For some measures, the investment costs were counted separately and missing in the listed data. So the payback period is higher than listed here.

## **C4.3c**

### **(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Dedicated budget for low-carbon product R&D | Our Group invested €13.1 billion in research and development in 2017. Much of this was spent on efficiency-enhancing technologies. |
| Compliance with regulatory requirements/standards | Compliance with regulatory requirements and standards is a set prerequisite for the Volkswagen Group. Current law and applicable legal regulations provide the binding framework for our worldwide activities. Introduction of increasingly stringent carbon emission performance requirements for vehicles is rigorously monitored worldwide and drives investment in emission reduction activities and thus catalyses the development of innovative emission reduction technologies. As to EU new-car fleet-average emissions, a further significant reduction to 95 g CO2/km by 2021 has already been agreed at EU commission level and the Volkswagen Goup is the first carmaker to have committed to this ambitious goal. In the meantime, other major markets too have adopted caps on new-car CO2 emissions. In China, Volkswagen passenger car models comply with the corporate average fuel consumption limits in force in that market since 2012. And measures are in the pipeline for further ambitious improvements, including improvements to the efficiency of our internal combustion engines and the introduction of alternative drive technologies. For 2015, China has set a new-car fleet-average fuel consumption target of 6.9 l/100 km. In the USA and Canada, a cap of 103 g CO2/km will apply from 2025. |
| Internal incentives/recognition programs | Our ideas management program is another important tool for encouraging employee engagement. This program enables employees to bring their creativity, knowledge and initiative to bear and take responsibility for improving both processes and products. By 2017, over 54,000 ideas had been submitted, saving the company approximately €124 million at German sites operated by >Volkswagen AG. It also contributes to improving health and safety and helps us reach our targets for reducing energy consumption and CO2 emissions. |
| Employee engagement | In the reporting period, more than 1,500 implemented measures in the area of environment and energy were documented in this system. They serve to improve passenger car and light commercial vehicle production processes. These activities are worthwhile not just from an environmental perspective: they also lead to annual savings of around €37.7 million. |
| Dedicated budget for other emissions reduction activities | Investment for environmental protection at our Volkswagen AG production sites was 17,000,000 € in 2017. Operating costs for environmental protection in Germany alone were about 227,000,000 €. We primarily invested in water pollution control (31.8%), waste management (30.6%) and air pollution control (17.5%). |
| Financial optimization calculations | One key instrument in the pursuit of our economic goals is the Modular Transverse Matrix, also known by its German abbreviation MQB, which helps make our production operations flexible and efficient. For one thing it enables us to use identical components in different models, reducing the cost of each individual vehicle. In Addition the MQB permits the replacement of individual components in response to revised customer wishes.This enables the Group to react promptly to changes in the marketplace and avoid excess capacities and misallocation of resources. In view of the varied and changing CO2 regulation scenario worldwide, this represents an invaluably added measure of flexibility. |

## **C4.5**

### **(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

## **C4.5a**

### **(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

### **Level of aggregation**

Company-wide

### **Description of product/Group of products**

Through yearly efficiency improvements on our product portfolio, we enable our customers to reduce their scope 1 and 2 GHG emissions significantly in the use phase of our products. A wide range of innovative energy-saving technologies is in place throughout our product portfolio, including e.g. start/stop, low rolling resistance tyres, recuperation of braking energy, sailing , lightweight construction technologies or selectable ECO-moid. Our eco-efficiency labels, eg. Volkswagen BlueMotion, Audi Ultra, Skoda Greenline, Seat Ecomotive are implemented to guide customers towards most efficient models. We currently offer a total of 524 model variants that emit less than 130 g CO2/km, 405 below 120 g/km, 63 model variants below 100 g/km, 25 model variants already below 95 g/km. (see: DAT-Leitfaden Q2/2018) About 80% of our cars sold in EU 28 are at or below 120g CO2/km.

### **Are these low-carbon product(s) or do they enable avoided emissions?**

Low-carbon product

### **Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (ISO 14040, life cycle assessment)

### **% revenue from low carbon product(s) in the reporting year**

66

### **Comment**

We know from LCA and our CO2 registry tool that CO2 emissions in the use phase of vehicles with combustion engines account for more than 70% of total scope 3 emissions. Provision of efficient consumption technologies along with electrification of the power train is Volkswagen´s most effective lever towards more and more environmentally compatible mobility. The Volkswagen Group invested € 13,1 billion in research and development in fiscal year 2017. The majority of this was spent on efficiency-increasing technologies. About 66% of our cars sold in EU 28 are at or below 120g CO2/km, from our point of view they count as low carbon vehicles. Thus about 66% revenue is from low carbon products.

### **Level of aggregation**

Company-wide

### **Description of product/Group of products**

Our goal is to reduce CO2-emissions from our EU new-car fleet to 95 g/km in 2020 and expanding the portfolio of alternative powertrain technologies is an integral part in our CO2 emission reduction strategy. Through yearly efficiency improvements for all vehicles, we enable our customers to reducte GHG emissions significantly. From 2007-2017, an assumed total amount of 18,8 Mio t CO2e have been demonstrably avoided just in Europe due to continuous efficiency improvements for all vehicles as proven by the reduction of CO2 emissions from our EU28 new vehicle fleet down to 122 g CO2/km. About 80% of our cars sold in EU 28 are at or below 120g CO2/km.

### **Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

### **Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (ISO 14040, life cycle assessment)

### **% revenue from low carbon product(s) in the reporting year**

66

### **Comment**

Determination of annual average CO2-emissions (GWP of CO2 emissions equal to 1) for our EU new vehicle-fleet is further backed up by correlation of our respective product portfolio fuel saving data and related Co2 emissions based on the following emission factors (gasoline 1l/100 km = 23,3 g CO2/km; diesel 1l/100 km = 26,3 g CO2/km; CHG 1 kg/100 km = 27,4 g CO2/km). The Volkswagen Group invested €13,1 billion in research and development in fiscal year 2017. The majority of this was spent on efficiency-increasing Technologies. About 66% of our cars sold in EU 28 are at or below 120g CO2/km, from our point of view they count as low carbon vehicles. Thus about 66% revenue is from low carbon products.

## **C5. Emissions methodology**

## **C5.1**

### **(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

### **Scope 1**

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

### **Base year emissions (metric tons CO2e)**

4388724

### **Comment**

### **Scope 2 (location-based)**

### **Base year start**

### **Base year end**

### **Base year emissions (metric tons CO2e)**

### **Comment**

### **Scope 2 (market-based)**

### **Base year start**

January 1 2010

### **Base year end**

December 31 2010

### **Base year emissions (metric tons CO2e)**

3714312

### **Comment**

## **C5.2**

### **(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

## **C6. Emissions data**

## **C6.1**

### **(C6.1) What were your organization’s gross global Scope 1 emissions in metric tons CO2e?**

### **Row 1**

### **Gross global Scope 1 emissions (metric tons CO2e)**

4297748

### **End-year of reporting period**

<Not Applicable>

### **Comment**

## **C6.2**

### **(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.**

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

### **Scope 2, market-based**

We are reporting a Scope 2, market-based figure

### **Comment**

## **C6.3**

### **(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?**

### **Row 1**

### **Scope 2, location-based**

5901889

### **Scope 2, market-based (if applicable)**

4907050

### **End-year of reporting period**

<Not Applicable>

### **Comment**

The location-based scope 2 emissions were calculated in accordance with document “VDA-Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe” from German Association of the Automotive Industry (VDA). The market-based scope 2 emissions calculation is based on 2017 emission factors. For purchased electrical energy at the production sites in China, market-based CO2 emission factors were not available. CO2 emission factors published by the government were used instead. In some regions of China (except China east) and in Portugal and Hungary these CO2 emission factors were higher than the factors from the German Association of the Automotive Industry (VDA). In these cases the (higher) marked based factors were used for calculation of location based CO2 emissions for some production sites.

## **C6.4**

### **(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

## **C6.4a**

### **(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

### **Source**

Seven Regional Product Centers of Scania

### **Relevance of Scope 1 emissions from this source**

Emissions are not relevant

### **Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

### **Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

### **Explain why the source is excluded**

No data was available for the mentioned sites. These sites’ aggregated number of employees is about 0.15% of the employees of all production sites included in the disclosure.

## **C6.5**

### **(C6.5) Account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions.**

### **Purchased goods and services**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

64139109

### **Emissions calculation methodology**

CO2e emissions in Category 1 have been calculated on base of sales-weighted Life Cycle Assessment (LCA) figures for 10,574,345 vehicles sold in 2017 worldwide. Emission factors have been derived on the basis of a multitude of extensive LCA studies of different car models and brands in the group. These have virtually all been certified independently according to ISO 14040/44. On the basis of these studies and in collaboration with suppliers particular emission factors have been derived on a vehicle-mass basis [kg CO2e/kg vehicle-mass] that represent CO2e emissions from purchased goods and services differentiated for various vehicle classes: • Mini • Small • Compact • Midsize • SUV • Vans • Fullsize • Sports cars • Light-duty commercial vehicles The corresponding activity data represent vehicle-class specific data on • mean vehicle weights and • sales figures from primary data sources

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **Capital goods**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

13846493

### **Emissions calculation methodology**

Emissions associated with capital goods have been calculated based on economic input-output analysis, using investments data as reported in the Volkswagen AG annual report 2017 These figures include the additions to Volkswagen AG property, plant and equipment. The following types of capital goods have been differentiated in the estimation: • Technical equipment and machinery for vehicle production • Technical equipment and machinery for subassembly and components production • Buildings

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

80

### **Explanation**

### **Fuel-and-energy-related activities (not included in Scope 1 or 2)**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1399741

### **Emissions calculation methodology**

Group-wide energy consumption is measured and reported annually based on information tracked in our internal environmental information system. On the basis of this data source we differentiate Cat.3 emissions for • Electricity and compressed air • Space heating (domestic generation and district heating) • Technical heating (domestic generation and district heating) • Gaseous fuels for manufacturing processes The corresponding Scope 3 emission factors (representing activities in Germany) have been referenced from representative generic databases.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

4374823

### **Emissions calculation methodology**

CO2e WTW emissions worldwide from inbound and outbound purchased logistics and transportation between our facilities. Transport data is derived from internal transport IT-Systems for all modes of transportation (road, rail, sea, barge and air). The calculation scheme was developed before the first release of GLEC Framework and was adapted in 2017 to meet GLEC requirements. Further adaptions may be needed to meet all GLEC conformance criteria, which are not yet finalized by GLEC. Furthermore the data collection scheme for transportation of cars and the emissions factors for land transportation are planned to be revised in 2018. Emissions data for buildings / transshipment centers is not available. Primary fuel consumption data is available for a significant share of sea transportation. All other transport emissions are calculated with generic emissions factors parametrized by mode of transport, vehicle size, utilization, distance and payload. In addition to that transport service provider specific information are used as parameters when deriving emissions factors. This Cat. 4 carbon accounting includes all transportation in Europe, all intercontinental transportation and the worldwide distribution of vehicles to national sales companies and vendors (in China only to depots). Transportation for MAN and Scania is only included when operated by Volkswagen Group Logistics. Processes not yet included are transportation of local sourced materials for non-EU factories, transportation of cars between depots and vendors in China and emissions by buildings / transshipment centers. The carbon accounting scheme is planned to be rolled-out for this regions and processes in the next years. In addition to that MAN and Scania are not yet included in Volkswagen Groups Carbon Accounting. In addition to that trains powered by regenerative electricity can not yet be identified in transport data and are calculated as conventionally powered trains.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **Waste generated in operations**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

2259423

### **Emissions calculation methodology**

Group-wide waste generation is measured and reported annually based on our internal environmental information system. On the basis of this primary data source we distinguish activity data for waste treatment : • Non-hazardous waste for disposal • Non-hazardous waste for recycling • Metallic waste • Hazardous waste for disposal • Hazardous waste for recycling • Waste water The corresponding Scope 3 emission factors (using factors for Germany) have been referenced from representative generic databases.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **Business travel**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

685148

### **Emissions calculation methodology**

The Volkswagen Group does not yet have a centralized system that covers business travel activities of all different brands and affiliates. Therefore, a generic estimation was made based on external reference data. This figure represents the mean CO2e-emission of one Volkswagen AG employee per year. The corresponding activity data represents the number of about 634,396 employees worldwide.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

50

### **Explanation**

### **Employee commuting**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

976650

### **Emissions calculation methodology**

Employee commuting in the Volkswagen group affects about 634,000 people. Activity data have been collected in a specific survey representing commuting to/from our largest facility in Wolfsburg/Germany. These data reflect the commuting behavior of about 54,000 employees from 13 residential areas with daily travelling distances up to 230 km. We assumed 220 working days per year, and worked with the following split between the transport modes: • Car 75% • Train (long distance) 10% • Public transportation (overland) 5% • Public transportation (urban) 10% The corresponding emission factors for these four transport modes were identified on the basis of external generic data sources. Global commuting-related Scope 3 emissions were calculated as an extrapolation of the Wolfsburg results, based on the number of employees.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

50

### **Explanation**

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Explanation**

We assume that the vast majority of GHG emissions that are generated by use of leased facilities and equipment are already reported in the Scopes 1 and 2. This also applies for leased assets in financial services Due to this we expect the remaining share of emissions from this category less than 1% of the total scope 3 emissions, i.e. being not relevant for our scope 3 GWP inventory.

### **Downstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Explanation**

The figure reported in Category 4 “Upstream transportation and distribution” generally covers transportation of products from our facilities to contracted retailers in Europe and also to transfer points to importers/retailers worldwide, i.e. outbound logistic processes. Thus, we solely understand "Downstream transportation and distribution" as the transport of our products from an importer/retailer to local dealers in any region outside Europe. As there is no specific information about details of these logistic processes, (means of transportation, payload, distance),at this point in time it is not possible to reliably quantify this category. However, it can be assumed that there is no significant impact on our scope 3 GHG inventory from this category.

### **Processing of sold products**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

13000

### **Emissions calculation methodology**

For Volkswagen AG’s products there is virtually no further processing. This figure thus reflects only GHG emissions resulting from final assembly of vehicles that are provided to our partners worldwide as semi-knocked down/completely knocked down (SKD/CKD) units. Activity data reflect the total number of vehicles that have been supplied via SKD/CKD. The corresponding emission factor represents the indirect CO2e emissions from final processing/assembly of the cars. This value has been derived as an average from our extensive LCA-studies.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

80

### **Explanation**

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

249466650

### **Emissions calculation methodology**

The number reflects the impact from the complete use phase (well-to-wheel) of 10,574,345 cars sold in 2017 over lifetime. The emission factor represents the weighted average CO2 value of our fleets in the main markets: • EU28 (plus Switzerland + Norway) • China (plus Japan + South Korea) • USA • Brasil The single figures specifically account for different driving cycles, depending on the region. Considering the individual sales numbers in these regions, the weighted mean value is representative for 81% of our worldwide sales – however, it is assumed to be representative for 100% of our cars. Subsequently this figure is completed by the corresponding well-to-tank emissions that have been derived for each region individually. Activity data represent the number of worldwide sales in combination with an assumed average kilometrage of 150,000 km over life time.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **End of life treatment of sold products**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1114154

### **Emissions calculation methodology**

In consistence with calculations for categories 1 and 11, this figure represents CO2e emissions from EoL-Treatment of 10,574,345 vehicles (number of cars sold in 2017). Different vehicle classes have been differentiated (for details see ’Methodology’ description for Category 1). The corresponding emission factors have been extracted from our extensive life cycle assessments database, representing specific mean values of CO2e emissions from EoL-treatment in the particular vehicle classes.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Explanation**

### **Downstream leased assets**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

942053

### **Emissions calculation methodology**

Activity data are based on primary information of group-wide financial investments taken from the annual report 2017. The figure comprises payments from non-cancelable leases and rental agreements, particularly the lease payments in 2017. Emissions for this category have been estimated Economic Input- Output assessment, and represent less than 1% of our overall scope 3 emissions (hence “not relevant”).

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

80

### **Explanation**

### **Franchises**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

1550000

### **Emissions calculation methodology**

For the calculation of this figure we account for Scope 1 & 2 CO2e emissions that are generated at our sales and distribution partners world-wide. Activity data have been evaluated based on the number of partners within the world-wide distribution network of the brands Volkswagen and Volkswagen commercial vehicles. Based on the share of global sales figures with this approach it is assumed that we cover at least 50% of the sales partners for the whole group world-wide. We assume every facility with a number of personnel of 30. Furthermore we distinguish facilities that comprise either (1) sales and service or (2) service only and subsequently different values for energy demand for • personnel in sales • personnel in service The CO2e emission factors for this calculation have been identified in cooperation with our strategic partner PE International.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

50

### **Explanation**

### **Investments**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Explanation**

“Volkswagen Financial Services" as well as the “Volkswagen Bank” both operate in the financial sector that generally accounts for GHG emissions in this Scope 3 category. However, the core business of these divisions is in financing projects of the brands within the group. Furthermore, relevant turn overs and revenues are generated through sales financing, leasing and insurance of vehicles of our own property. Thus, we expect the relevance of this category to be marginal, as these emissions are captured in Scope 1 and 2, and other Scope 3 categories.

### **Other (upstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Explanation**

### **Other (downstream)**

### **Evaluation status**

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Explanation**

## **C6.7**

### **(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?**

No

## **C6.10**

### **(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

### **Intensity figure**

0.0000467

### **Metric numerator (Gross global combined Scope 1 and 2 emissions)**

9204798

### **Metric denominator**

unit total revenue

### **Metric denominator: Unit total**

196949000000

### **Scope 2 figure used**

Market-based

### **% change from previous year**

8.3

### **Direction of change**

Decreased

### **Reason for change**

The sales revenue increased by 5.6 % compared to 2016. Also the CO2 emissions have been decreased through emission reduction activities and the purchase of more renewable energy. Description of an exemplary reduction activity: a) Installation of new air handling units with heat recovery systems at the Hanover plant of Volkswagen. This saves electricity as well as heat energy and accounts for a CO2 reduction of about 5000 tons. b) New combined heat and power plant at the Munich site of MAN. The two 2.5-megawatt natural gas generators supply power and heat to the production and administration facilities. A significant share of the electricity required at the plant can now be generated directly on site. The heat created in the process is used to supply production facilites and buildings. By producing its own heat and power and thus increasing efficiency, MAN Truck & Bus is saving a single-digit million euro amount a year on energy costs, as well as 9,500 tons of CO2 emissions.

### **Intensity figure**

0.857

### **Metric numerator (Gross global combined Scope 1 and 2 emissions)**

9204798

### **Metric denominator**

vehicle produced

### **Metric denominator: Unit total**

10741455

### **Scope 2 figure used**

Market-based

### **% change from previous year**

7.5

### **Direction of change**

Decreased

### **Reason for change**

The production volume increased by 3.1 % compared to 2016. Also the CO2 emissions have been decreased through through emission reduction activities and the purchase of more renewable energy. Description of an exemplary reduction activity: a) Installation of new air handling units with heat recovery systems at the Hanover plant of Volkswagen. This saves electricity as well as heat energy and accounts for a CO2 reduction of about 5000 tons. b) New combined heat and power plant at the Munich site of MAN. The two 2.5-megawatt natural gas generators supply power and heat to the production and administration facilities. A significant share of the electricity required at the plant can now be generated directly on site. The heat created in the process is used to supply production facilites and buildings. By producing its own heat and power and thus increasing efficiency, MAN Truck & Bus is saving a single-digit million euro amount a year on energy costs, as well as 9,500 tons of CO2 emissions.

## **C7. Emissions breakdowns**

## **C7.1**

### **(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

Yes

## **C7.1a**

### **(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

|  |  |  |
| --- | --- | --- |
| **Greenhouse gas** | **Scope 1 emissions (metric tons of CO2e)** | **GWP Reference** |
| HFCs | 69086 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| CH4 | 3444 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| N2O | 915 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| SF6 | 22435 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| CO2 | 4201869 | IPCC Fourth Assessment Report (AR4 - 100 year) |

## **C7.2**

### **(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| Argentina | 28773 |
| Austria | 7967 |
| Belgium | 22852 |
| Bosnia and Herzegovina | 172 |
| Brazil | 58904 |
| China | 468110 |
| Czechia | 53206 |
| Denmark | 5533 |
| France | 6670 |
| Germany | 3079854 |
| Hungary | 30682 |
| India | 11841 |
| Italy | 12488 |
| Mexico | 101325 |
| Netherlands | 4436 |
| Poland | 69056 |
| Portugal | 13507 |
| Russian Federation | 25876 |
| Slovakia | 66211 |
| South Africa | 16857 |
| Spain | 149254 |
| Sweden | 23753 |
| Switzerland | 43 |
| Thailand | 28 |
| Turkey | 10772 |
| United Kingdom of Great Britain and Northern Ireland | 14721 |
| United States of America | 14859 |

## **C7.3**

### **(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

## **C7.3c**

### **(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

|  |  |
| --- | --- |
| **Activity** | **Scope 1 emissions (metric tons CO2e)** |
| Production of passenger cars and light commercial vehicles | 4103587 |
| Production of Heavy commercial vehicles, motorcycles and non-vehicle products | 194161 |

## **C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4**

### **(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization’s total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gross Scope 1 emissions, metric tons CO2e** | **Net Scope 1 emissions , metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Electric utility generation activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 4297748 | <Not Applicable> |  |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C7.5**

### **(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country/Region** | **Scope 2, location-based (metric tons CO2e)** | **Scope 2, market-based (metric tons CO2e)** | **Purchased and consumed electricity, heat, steam or cooling (MWh)** | **Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)** |
| Argentina | 62864.83 | 62864.83 | 150307.77 | 6982.59 |
| Austria | 11109.97 | 11109.97 | 43263.69 | 62847.64 |
| Belgium | 14783.71 | 0 | 70588 | 70588 |
| Bosnia and Herzegovina | 1522.6 | 1522.6 | 11274.65 | 0 |
| Brazil | 128395.08 | 0 | 416676.65 | 452603.77 |
| China | 2803827.68 | 3050309.3 | 4198515.27 | 537761.26 |
| Czechia | 508036.32 | 367554.79 | 1019324.93 | 413965 |
| Denmark | 5728.41 | 5728.41 | 18801.52 | 0 |
| France | 219.16 | 11 | 10856.7 | 10856.7 |
| Germany | 977378.02 | 459861.28 | 2335201.31 | 1435667.84 |
| Hungary | 231297.59 | 231297.59 | 516508.36 | 127431.73 |
| India | 61320.5 | 60228.39 | 71847.06 | 10458.61 |
| Italy | 8370.15 | 778.9 | 24919.07 | 23624.44 |
| Mexico | 253230.28 | 219500.52 | 555885.14 | 154072.8 |
| Netherlands | 1034.66 | 0 | 29136 | 29136 |
| Poland | 345989.02 | 260727.42 | 415323.49 | 115200.56 |
| Portugal | 13529.32 | 17912.58 | 96747.14 | 57056.24 |
| Russian Federation | 19332.45 | 16603.04 | 87518.5 | 16489.35 |
| Slovakia | 126954.02 | 0 | 335261.01 | 335261.01 |
| South Africa | 90028.63 | 90028.63 | 87561.34 | 0 |
| Spain | 157201.99 | 0 | 538078.93 | 538078.93 |
| Sweden | 15612.99 | 2223 | 423195 | 369290 |
| Switzerland | 1503.78 | 1503.78 | 18508.37 | 0 |
| Thailand | 776.7 | 776.7 | 2482 | 0 |
| Turkey | 0 | 0 | 17537.77 | 17537.77 |
| United Kingdom of Great Britain and Northern Ireland | 15333.76 | 0 | 36855 | 36855 |
| United States of America | 46507 | 46507 | 119992.68 | 12864 |

## **C7.6**

### **(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By activity

## **C7.6c**

### **(C7.6c) Break down your total gross global Scope 2 emissions by business activity.**

|  |  |  |
| --- | --- | --- |
| **Activity** | **Scope 2, location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| Production of passenger cars and light commercial vehicles | 5588768 | 4627477 |
| Production of Heavy commercial vehicles, motorcycles and non-vehicle products | 313121 | 279573 |

## **C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7**

### **(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Scope 2, location-based, metric tons CO2e** | **Scope 2, market-based (if applicable), metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 5899800 | 4904952 | Without testing circuit outside Wolfsburg; with motorcycle production |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C-TO7.8**

### **(C-TO7.8) Provide primary intensity metrics that are appropriate to your indirect emissions in Scope 3 Category 11: Use of sold products from transport.**

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000082

### **Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e**

249466650

### **Metric denominator**

p.km

### **Metric denominator: Unit total**

999999999999

### **% change from previous year**

-0.01

### **Vehicle unit sales in reporting year**

10574345

### **Vehicle lifetime in years**

15

### **Annual distance in km or miles (unit specified by column 4)**

10

### **Load factor**

1.91

### **Please explain the changes, and relevant standards/methodologies used**

PLEASE NOTE: Correct figure is for denominator is 3,043,284,398,709 p.km (COULD NOT BE ENTERED ABOVE DUE TO FIGURE RANGE LIMIT) Scope 3 cat. 11 CO2 emissions were distributed to the markets EU, USA, Brazil and China (which represent 81% of all Group LDV use phase emissions) based on their respective shares on overall vehicle sales. In the same manner, vehicle sales in the four markets were extrapolated based on the overall sum of vehicles sold. The calculated vehicle sales per market are multiplied with a lifetime mileage of 150,000km and the the load factor to calculate p.km per market. The load factor was derived from the ETP 2017 with model data for 2015 as a weighted average of the four included markets. The p.km per market are summed up for the total Group LDV p.km in 2017. Finally, the scope 3 cat. 11 CO2 emissions are divided by the Group p.km sum. In the columns to the left, we have entered the lifetime kilometrage of 150,000 km as an annual km of 10,000 km over 15 years. The slight improvement of 0.006% in the CO2 intensity per p.km in comparison to 2016 is due to an improved fleet emission average. We constantly work to further reduce fleet emissions.

## **C7.9**

### **(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Decreased

## **C7.9a**

### **(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 440947 | Decreased | 4.59 | The Volkswagen Group reduced its CO2 emissions by 440,947 t or about 4,59 % in absolute terms compared to 2016 by increasing the renewable energy consumption. Calculation: - 440.947 tCO2e (2016-2017) / 9.601.265 tCO2 (2016) = - 4,59% |
| Other emissions reduction activities | 409183 | Decreased | 4.26 | The Volkswagen Group reduced its CO2 emissions by 409,183 t or about 4,26 % in absolute terms compared to 2016 (volume adjusted). Resource-optimized manufacturing processes and methods have had a positive impact on CO2 emissions per vehicle produced. This includes, as an example for emission reduction activities, our effort to further reduce energy consumption of building services, like lighting, HVAC, compressed air. The calculation was basically done by estimating the CO2 emission for the year 2017 which would have been emitted by producing the vehicle output of 2017 with the "CO2 efficiency of the production from 2017". The difference between the "CO2 estimation for 2017" and the "real CO2 emissions of 2017" constitutes the CO2 reduction (volume adjusted). This CO2 reduction (volume adjusted) is decreased by the CO2 reduction by the change in renewable energy consumption, which is mentioned separately. Calculation: - 409.183 t CO2e (2016-2017)/ 9.601.265 tCO2 (2016) = - 4,26%. |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output | 453665 | Increased | 4.73 | While the sum of the production volume for the Group is increasing, the effect for each production site differs. The increasing production volume in production sites (e.g. China) with bigger CO2 emissions causes a higher increase in sum of CO2 emissions for the Group. + 453.665 t CO2 (2016-2017) / 9.601.265 tCO2 (2016) = + 4,73%. |
| Change in methodology |  | <Not Applicable> |  |  |
| Change in boundary |  | <Not Applicable> |  |  |
| Change in physical operating conditions |  | <Not Applicable> |  |  |
| Unidentified |  | <Not Applicable> |  |  |
| Other |  | <Not Applicable> |  |  |

## **C7.9b**

### **(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based

## **C8. Energy**

## **C8.1**

### **(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

## **C8.2**

### **(C8.2) Select which energy-related activities your organization has undertaken.**

|  |  |
| --- | --- |
|  | **Indicate whether your organization undertakes this energy-related activity** |
| Consumption of fuel (excluding feedstocks) | Yes |
| Consumption of purchased or acquired electricity | Yes |
| Consumption of purchased or acquired heat | Yes |
| Consumption of purchased or acquired steam | No |
| Consumption of purchased or acquired cooling | No |
| Generation of electricity, heat, steam, or cooling | Yes |

## **C8.2a**

### **(C8.2a) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total MWh** |
| Consumption of fuel (excluding feedstock) | LHV (lower heating value) | 0 | 17791753 | 17791753 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 4265131 | 5091193 | 9356324 |
| Consumption of purchased or acquired heat | <Not Applicable> | 554185 | 1741659 | 2295844 |
| Consumption of purchased or acquired steam | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 169642 | <Not Applicable> | 169642 |
| Total energy consumption | <Not Applicable> | 4988957 | 24624605 | 29613562 |

## **C8.2b**

### **(C8.2b) Select the applications of your organization’s consumption of fuel.**

|  |  |
| --- | --- |
|  | **Indicate whether your organization undertakes this fuel application** |
| Consumption of fuel for the generation of electricity | Yes |
| Consumption of fuel for the generation of steam | No |
| Consumption of fuel for the generation of cooling | Yes |
| Consumption of fuel for co-generation or tri-generation | Yes |

## **C8.2c**

### **(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

### **Fuels (excluding feedstocks)**

Natural Gas

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

9927055

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

8158569

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

1768486

### **Fuels (excluding feedstocks)**

Other, please specify (Heating oil)

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

41641

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

41641

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

0

### **Fuels (excluding feedstocks)**

Propane Gas

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

99305

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

99305

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

0

### **Fuels (excluding feedstocks)**

Coal

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

7072832

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

0

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

7072832

### **Fuels (excluding feedstocks)**

Diesel

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

431956

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

431956

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

0

### **Fuels (excluding feedstocks)**

Petrol

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

218964

### **MWh fuel consumed for the self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

218964

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self- cogeneration or self-trigeneration**

0

## **C8.2d**

### **(C8.2d) List the average emission factors of the fuels reported in C8.2c.**

### **Coal**

### **Emission factor**

0.342

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

### **Diesel**

### **Emission factor**

0.2664

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

### **Natural Gas**

### **Emission factor**

0.2016

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

### **Petrol**

### **Emission factor**

0.2592

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

### **Propane Gas**

### **Emission factor**

0.234

### **Unit**

metric tons CO2 per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

### **Other**

### **Emission factor**

0.2664

### **Unit**

metric tons CO2e per MWh

### **Emission factor source**

German Emissions Trading Authority (DEHSt): "Leitfaden zur Erstellung von Überwachungsplänen für stationäre Anlagen in der 3. Handelsperiode" (ETS documentation)

### **Comment**

Heating oil

## **C8.2e**

### **(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total Gross generation (MWh)** | **Generation that is consumed by the organization (MWh)** | **Gross generation from renewable sources (MWh)** | **Generation from renewable sources that is consumed by the organization (MWh)** |
| Electricity | 3343727 | 3172995 | 158384 | 157156 |
| Heat | 4066719 | 4059016 | 353 | 353 |
| Steam | 0 | 0 | 0 | 0 |
| Cooling | 0 | 0 | 0 | 0 |

## **C8.2f**

### **(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.**

### **Basis for applying a low-carbon emission factor**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

### **Low-carbon technology type**

Solar PV

Other low-carbon technology, please specify (Solar Thermal)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

169640

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

### **Basis for applying a low-carbon emission factor**

Power Purchase Agreement (PPA) without energy attribute certificates

### **Low-carbon technology type**

Solar PV

Hydropower

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

537100

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), where electricity attribute certificates do not exist or are not required for a usage claim

### **Basis for applying a low-carbon emission factor**

Contract with suppliers or utilities ( e.g. green tariff), supported by energy attribute certificates

### **Low-carbon technology type**

Biomass (including biogas)

Other low-carbon technology, please specify (Solar Thermal)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

554185

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

Contract with suppliers or utilities, supported by energy attribute certificates

### **Basis for applying a low-carbon emission factor**

Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

### **Low-carbon technology type**

Hydropower

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

56906

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

Contract with suppliers or utilities, with a supplier-specific emission rate, not backed by electricity attribute certificates

### **Basis for applying a low-carbon emission factor**

Energy attribute certificates, Guarantees of Origin

### **Low-carbon technology type**

Solar PV

Wind

Hydropower

Biomass (including biogas)

Other low-carbon technology, please specify (Solar Thermal)

### **MWh consumed associated with low-carbon electricity, heat, steam or cooling**

2734355

### **Emission factor (in units of metric tons CO2e per MWh)**

0

### **Comment**

Energy attribute certificates, Guarantees of Origin

## **C-TO8.4**

### **(C-TO8.4) Provide any efficiency metrics that are appropriate for your organization’s transport products and/or services.**

### **Activity**

Light Duty Vehicles (LDV)

### **Metric figure**

0.8185

### **Metric numerator**

tCO2e

### **Metric denominator**

Production: Vehicle

### **Metric numerator: Unit total**

8731064

### **Metric denominator: Unit total**

10667549

### **% change from previous year**

-8.8

### **Please explain**

Intensity has decreased significantly. Reasons are purchase of more renewable energy, emissions reduction activities and higher production output

### **Activity**

Heavy Duty Vehicles (HDV)

### **Metric figure**

### **Metric numerator**

Please select

### **Metric denominator**

Please select

### **Metric numerator: Unit total**

### **Metric denominator: Unit total**

### **% change from previous year**

### **Please explain**

## **C9. Additional metrics**

## **C9.1**

### **(C9.1) Provide any additional climate-related metrics relevant to your business.**

## **C-TO9.3/C-TS9.3**

### **(C-TO9.3/C-TS9.3) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.**

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Vehicle using LPG/CNG

### **Metric figure**

84938

### **Metric unit**

Units

### **Explanation**

Compared to 2016, number of vehicles sold has increased by 14%

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Vehicle using bio-fuel

*E85-Veh. in Brazil*

### **Metric figure**

272231

### **Metric unit**

Units

### **Explanation**

Compared to 2016, number of vehicles sold has increased by 18%

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Plug-in hybrid vehicle (PHEV)

### **Metric figure**

39525

### **Metric unit**

Units

### **Explanation**

Compared to 2016, number of vehicles sold has increased by 1%

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

*LDV - worldwide*

### **Technology**

Battery electric vehicle (BEV)

### **Metric figure**

20913

### **Metric unit**

Units

### **Explanation**

Compared to 2016, number of vehicles sold has increased by 25%

### **Activity**

Heavy Duty Vehicles (HDV)

### **Metric**

Sales

### **Technology**

Other, please specify (Buses with alternative fuels, mainly CNG)

### **Metric figure**

509

### **Metric unit**

Units

### **Explanation**

Gas-powered buses accounted for one in five of all MAN city buses sold during the year 2016. MAN Truck and Bus is the leading European supplier of gas buses, with an average market share of 39% in 2016 (see MAN GRI Report 2016, p. 27).

### **Activity**

Heavy Duty Vehicles (HDV)

### **Metric**

Sales

### **Technology**

Other, please specify (Trucks with alternative fuels & hybrids)

### **Metric figure**

5131

### **Metric unit**

Units

### **Explanation**

Compared to 2016, number of vehicles sold has increased by approx. 2.5%

## **C-TO9.6/C-TS9.6**

### **(C-TO9.6/C-TS9.6) What is your investment in research and development (R&D), equipment, products and services and which part of it would you consider a direct investment in the low-carbon transition?**

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2018

### **Investment area**

R&D

### **Technology area**

Other, please specify (Efficiency increasing technologies)

### **Investment maturity**

Applied research and development

### **Investment figure**

13100000000

### **Low-carbon investment percentage**

81-100%

### **Please explain**

In 2017, we invested €13,1 billion in research and development. The majority of this was spent on efficiency-increasing technologies. we are currently developing a forward-looking vehicle and drivetrain portfolio: to achieve our goal of sustainable mobility, we have set ourselves the objective of increasing drive system efficiency with each new model generation – irrespective of whether the means of propulsion is a combustion engine, a hybrid, a plug-in hybrid, a purely electric drive, or a fuel cell drive system.

### **Activity**

Heavy Duty Vehicles (HDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2018

### **Investment area**

R&D

### **Technology area**

Other, please specify (Efficiency increasing technologies)

### **Investment maturity**

Applied research and development

### **Investment figure**

13100000000

### **Low-carbon investment percentage**

81-100%

### **Please explain**

In 2017, we invested €13,1 billion in research and development. The majority of this was spent on efficiency-increasing technologies. we are currently developing a forward-looking vehicle and drivetrain portfolio: to achieve our goal of sustainable mobility, we have set ourselves the objective of increasing drive system efficiency with each new model generation – irrespective of whether the means of propulsion is a combustion engine, a hybrid, a plug-in hybrid, a purely electric drive, or a fuel cell drive system.

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

January 1 2017

### **Investment end date**

December 31 2030

### **Investment area**

Products

### **Technology area**

Electrification

### **Investment maturity**

Full/commercial-scale demonstration

### **Investment figure**

20000000000

### **Low-carbon investment percentage**

81-100%

### **Please explain**

We anticipate that by as early as 2025, one in four new Volkswagen Group vehicles worldwide will have a purely electric drive; depending on the market development, this could be up to three million electric vehicles a year. The Volkswagen Group has launched a comprehensive electrification offensive in the form of Roadmap E. Across the Group, we will be launching 17 new plug-in hybrids over the next two years. By 2025, we plan to offer our customers around the world more than 80 new electric models, including some 50 purely battery-driven vehicles and 30 plug-in hybrids. By 2030, the Volkswagen Group aims to electrify its entire model portfolio – from high-volume models to premium vehicles. This will mean offering at least one electric version of each of our approximately 300 models across all Group brands. We are therefore planning to invest more than €20 billion in industrializing e-mobility by 2030, involving, amongst other things, the development of two new electric platforms for vehicles with a range of up to 600 km. Examples include the Volkswagen I.D. family of concept vehicles, the Audi e-tron and Porsche’s Mission E.

## **C10. Verification**

## **C10.1**

### **(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

|  |  |
| --- | --- |
|  | **Verification/assurance status** |
| Scope 1 | Third-party verification or assurance process in place |
| Scope 2 (location-based or market-based) | Third-party verification or assurance process in place |
| Scope 3 | Third-party verification or assurance process in place |

## **C10.1a**

### **(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.**

### **Scope**

Scope 1

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/ section reference**

All pages: The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC)

### **Relevant standard**

ISAE3000

### **Proportion of reported emissions verified (%)**

100

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Scope**

Scope 2 market-based

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/ section reference**

All pages: The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC)

### **Relevant standard**

ISAE3000

### **Proportion of reported emissions verified (%)**

100

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

## **C10.1b**

### **(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

### **Scope**

Scope 3- at least one applicable category

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Attach the statement**

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

### **Page/section reference**

All pages: The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC)

### **Relevant standard**

ISAE3000

## **C10.2**

### **(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

## **C10.2a**

### **(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

[Nonfinancial\_Report\_2017\_e.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/EChyQZov6028NHDHhuq02A/NonfinancialReport2017e.pdf)

[VW AG\_CDP Verification Template\_18.04.2018\_final.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gAQbQsa9ZUuF36tDZb51RA/VWAGCDPVerificationTemplate18.04.2018final.pdf)

|  |  |  |  |
| --- | --- | --- | --- |
| **Disclosure module verification relates to** | **Data verified** | **Verification standard** | **Please explain** |
| C8. Energy | Other, please specify (Energy Consumption data) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2017, as declared on p.122-123 of said report (see attachment) |
| C6. Emissions data | Year on year change in emissions (Scope 1) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2017, as declared on p.122-123 of said report (see attachment) |
| C6. Emissions data | Year on year change in emissions (Scope 2) | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2017, as declared on p.122-123 of said report (see attachment) |
| C5. Emissions performance | Year on year emissions intensity figure | ISAE3000 | The data has been verified by the following organization: PriceWaterhouseCoopers AG (PWC), as part of the assurance of our Non-financial Report 2017, as declared on p.122-123 of said report (see attachment) |

## **C11. Carbon pricing**

## **C11.1**

### **(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

Yes

## **C11.1a**

### **(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.**

EU ETS

## **C11.1b**

### **(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

### **EU ETS**

### **% of Scope 1 emissions covered by the ETS**

87

### **Period start date**

January 1 2017

### **Period end date**

December 31 2017

### **Allowances allocated**

1099789

### **Allowances purchased**

2639466

### **Verified emissions in metric tons CO2e**

3739255

### **Details of ownership**

Facilities we own and operate

### **Comment**

## **C11.1d**

### **(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

To ensure compliance with the European Union ETS Volkswagen tries to reduce its need for emission certificates. Besides efficiency measures, lowering the emission intensity of our energy supply plays a major role in our efforts to cut GHG emissions. A large part of the energy demand of Volkswagen AG at our German locations is covered by own generation facilities, operated by our subsidiary VW Kraftwerk GmbH. Since 2011, VW Kraftwerk GmbH has been investing in the ongoing development of renewables and the construction of highly efficient combined heat and power (CHP) plants driven by natural gas.

Example: In the period to 2016, the company invested around €26 million in renewables such as wind farms and photovoltaic power plants. As part of our fuel conversion strategy, VW Kraftwerk GmbH also invested some €15 million in a CHP plant in Braunschweig and some €65 million in a gas and steam turbine (combined­cycle) plant in Kassel. At our Wolfsburg site alone, we will invest €400 million in the conversion of the existing power plants to natural gas firing. The modernization measures and the move away from hard coal will cut annual CO2 emissions by 1.5 million tons. This corresponds to a reduction of close to 60 percent at the Wolfsburg site or, to make the figure more tangible, the combined annual CO2 emissions of 870,000 cars.

Responsibility for energy- efficient production within our production plants lies with the Energy Management Production team. This team develops energy efficiency standards for the whole Group, which require for example that plants must only purchase energy-efficient machine tools or production equipment. Also, for the past ten years the Corporate Environment Working Group has been promoting worldwide best practice sharing.

Purchasing/procurement strategy:

A second major part of Volkswagen’s strategy to comply with the schemes is a uniform Group-wide steering (mechanism) for the distribution of certificates to the Group companies. Certificates for the third trading period are secured in advance (“pooling” of certificates). This allows a decoupling of market and price fluctuations. Thereby Volkswagen assures in the long term that the Group will be compliant in the field of emission trading. All these efforts have their part to play in protecting the climate.

## **C11.2**

### **(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

Yes

## **C11.2a**

### **(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

### **Credit origination or credit purchase**

Credit purchase

### **Project type**

Biomass energy

### **Project identification**

India: Power generation from harvest residues https://mer.markit.com/br-reg/public/project.jsp?project\_id=103000000003084

### **Verified to which standard**

Gold Standard

### **Number of credits (metric tonnes CO2e)**

189.27

### **Number of credits (metric tonnes CO2e): Risk adjusted volume**

189.27

### **Credits cancelled**

Yes

### **Purpose, e.g. compliance**

Voluntary Offsetting

## **C11.3**

### **(C11.3) Does your organization use an internal price on carbon?**

Yes

## **C11.3a**

### **(C11.3a) Provide details of how your organization uses an internal price on carbon.**

### **Objective for implementing an internal carbon price**

Navigate GHG regulations

### **GHG Scope**

Scope 3

### **Application**

Product Line; Research and Development (Applies to LDV sold witin the EU)

### **Actual price(s) used (Currency /metric ton)**

633

### **Variance of price(s) used**

This is a fixed price, determined by penalties for exceeding fleet emission regulations in the applicable market. In case of future changes to this regulation, or an extension of its scope, we will adjust the setting of the price accordingly.

### **Type of internal carbon price**

Implicit price

### **Impact & implication**

Description: Based on EU fleet regulation from 2020/2021 onwards (95 g CO2 / km for the whole fleet) exceeding the target by 1 g CO2 / km costs 95 € / vehicle. Use: This serves as a price tag for our internal CO2 management. Apart from that price tag we spare no effort to comply with the worldwide fleet emission limits. The price is used on a per vehicle basis, and serves to identify cost effective approaches to further reduce vehicle consumption. In order to arrive at the requested price per t CO2, we assumed a kilometrage of 150000 per vehicle. Impact: Target achievement is consequently pursued via continuous development and provision of more and more fuel efficient and CO2 emission reduced vehicles and by strongly persuing our Roadmap E: Across the Group, we will be launching 17 new plug-in hybrids over the next two years. By 2025, we intend to bring 50 purely battery powered vehicles and 30 plug-in-hybrids to market.

## **C12. Engagement**

## **C12.1**

### **(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers

## **C12.1a**

### **(C12.1a) Provide details of your climate-related supplier engagement strategy.**

### **Type of engagement**

Information collection (understanding supplier behavior)

### **Details of engagement**

Collect climate change and carbon information at least annually from suppliers

### **% of suppliers by number**

0.2

### **% total procurement spend (direct and indirect)**

43

### **% Scope 3 emissions as reported in C6.5**

### **Rationale for the coverage of your engagement**

We engage with more than 100 relevant suppliers via the CDP Supply Chain Program (SCP) within the commodities aluminum, steel and plastics. This covers 43% of total spend on purchased materials (excluding services; also excluded for technical reasons are VW do Brasil, Scania and our chinese joint ventures). Using this priorization, we aim to cover a significant part of our material emissions, even though the share of suppliers by number is comparably low. This is due to the fact that we that we have more than 40 000 tier 1 suppliers worldwide, of which many have a small share of procurement spend, and/or are not production material suppliers. We use supplier’s data in different ways: We use the data to analyse anomalities and to get in direct dialogue with the suppliers. Moreover, we use the data for comparison with our own generic data and to make our LCA databases more specific.

### **Impact of engagement, including measures of success**

We analyze the responses that we get in line with the CDP Supply Chain Program in order to select suppliers. Measure of success: We measure the response rate and the average scoring level attained as general measures for success. Also, we look at individual indicators, like % of suppliers that adopted GHG reduction targets. Impact: In 2017, Overall, the response rate in 2017 rose to 84% (2016: 83%). According to our suppliers’ self­assessments, they reduced their overall emissions by a total of 16.5 million t CO₂e (compared to 2016: 16 million t of CO₂e). In reporting year 2016, the CDP included Science Based Targets (SBT) in the question­naire for the first time: 25% of our suppliers who responded have already set themselves SBTs or undertaken to do so. These emission reduction developments within our supply chain are contributing to Volkswagen’s positive evaluation under the CDP rating’s Leader­ ship index.

### **Comment**

### **Type of engagement**

Information collection (understanding supplier behavior)

### **Details of engagement**

Other, please specify (Suppliers environmental & social data)

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

100

### **% Scope 3 emissions as reported in C6.5**

19

### **Rationale for the coverage of your engagement**

All our suppliers are requested to answer a sustainability questionnaire which contains questions concerning environmental management and goals (i.e. presence of an environmental and/or energy management system, and whether the supplier is taking part in the CDP Climate Change program). All our suppliers are requested to minimize their impacts on the environment (see brochure "Sustainability in Supplier Relation"). The emissions of Purchased Goods and Services, which are directly supply chain-related, make up 19% of out total Scope 3 inventory. All marerial suppliers are requested to complete the questionnaire.

### **Impact of engagement, including measures of success**

Measure of success: By the end of the reporting year, over 25,000 of our suppliers had completed the sustainability self-assessment questionnaire and submitted it to us. This covers around 89% of our total procurement volume. Impact: We use the responses to these self-assessments to help identify ways to enhance sustainability performance, and then communicate the latter to our suppliers. In the last fiscal year, by taking appropriate measures to enhance suppliers’ sustainability performance, we were able to improve the sustainability performance of more than 1,500 suppliers.

### **Comment**

### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

100

### **% Scope 3 emissions as reported in C6.5**

19

### **Rationale for the coverage of your engagement**

All our suppliers are requested to conduct the eLearning which includes lessons on environmental protection as well as energy efficiency and also a self-check to test their understanding from the lesson. The eLearning which is also available to all Volkswagen Group procurement staff,can be conducted in eight languages. The emissions of Purchased Goods and Services, which are directly supply chain-related, make up 19% of out total Scope 3 inventory. All material suppliers are requested to complete the e-learning module.

### **Impact of engagement, including measures of success**

By the end of the reporting year, 29,000 suppliers – representing 80% of our procurement volume – had completed the e-learning module. Alongside the e-learning format, we also conduct issue-specific sustainability training courses and workshops with our suppliers at selected locations. During the reporting period, training events were held in Turkey, India, Italy, Germany, Argentina and Brazil. In total, around 700 personnel employed by some 360 of our suppliers were given training. on sustainability issues at these events.

### **Comment**

### **Type of engagement**

Innovation & collaboration (changing markets)

### **Details of engagement**

Other, please specify (Cooperation to reduce CO2 in the SC)

### **% of suppliers by number**

### **% total procurement spend (direct and indirect)**

### **% Scope 3 emissions as reported in C6.5**

### **Rationale for the coverage of your engagement**

Supply Chain transparency initiative with selected suppliers and development of sustainable supply chain roadmap to develop strategies to reduce CO2 emissions in upstream supply chains.

### **Impact of engagement, including measures of success**

The project is currently ongoing, impacts will be analyzed and reported after completion of the current project phase.

### **Comment**

## **C12.1b**

### **(C12.1b) Give details of your climate-related engagement strategy with your customers.**

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

### **Size of engagement**

78

### **% Scope 3 emissions as reported in C6.5**

57

### **Please explain the rationale for selecting this group of customers and scope of engagement**

In the most important markets for the Volkswagen Group, i.e. the EU, USA, China, labelling requirements for passenger car fuel efficiency are in place, as well as in many other markets. Volkswagen provides information about the use phase CO2 emissions and respective labels and certificates of individual models in sales materials, on our brands’ websites and at dealerships worldwide. The % stated in “size of engagement” refers to our passenger car sales in EU, USA and China, where the coverage of said engagement can be safely assumed and easily calculated.

### **Impact of engagement, including measures of success**

We measure the impact by monitoring the average fleet fuel consumption in the stated markets. Our fleet fuel consumption has decreased in all three markets over the last three years (e.g. from 126 g/km to 122 g/km in EU27), which can be considered a success. However a stagnation was visible in the reporting year compared to the previous year in the EU and US. This could signify that impacts of product information sharing and labelling have somewhat diminished over time, in the context of customer preference for larger cars.

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

### **Size of engagement**

### **% Scope 3 emissions as reported in C6.5**

### **Please explain the rationale for selecting this group of customers and scope of engagement**

Our LCA shows that about 75% of CO2-emissions are allocated to the use phase. So beside efficiency of the cars, eco-fiendly driving habits can cut CO2-emissions. We support our customers in this respect with a range of courses Eco-Friendly Driving: In Germany, we offer free fuel economy trainings, held in collaboration with local NABU groups, Volkswagen Dealers & a team from Volkswagen Driving Experience. Customers can also book “Think Blue. Eco-Training” courses directly with Volkswagen in Germany, Hong Kong & Singapore. Save Fuel with “Think Blue. Trainer.” “Think Blue. Trainer.” is a driver assistance program offering vital information on current fuel consumption during the journey, to encourage more eco-friendly driving habits. The trainer also provides the driver with valuable live feedback on gear shifting, speed & foresight, as well as coasting & overrun fuel cut-off. The range of functions offered by the “Think Blue. Trainer.” can be further extended with the “Volkswagen Car-Net Think Blue. Trainer.” app, which communicates with the vehicle. The app contains training challenges that provide additional motivation. All trips are automatically stored & can later be used for cross-comparison.

### **Impact of engagement, including measures of success**

The average impact of fuel economy trainings is more than 10 % fuel comsumption reduction (experience worth). 19,520 people attended Driving Experience eco-driving courses and test drives (2017)

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

### **Size of engagement**

### **% Scope 3 emissions as reported in C6.5**

### **Please explain the rationale for selecting this group of customers and scope of engagement**

Commercial fleets are a powerful lever for making road traffic more environmentally compatible. More than 60% of all newly registered cars are fleet vehicles, and most of them clock up very high mileage. What is more, they are often leased, and therefore replaced every few years. Volkswagen has come up with an environmental program which allows the fleet manager to protect the environment and cut costs at the same time. Since the program was launched, Volkswagen Leasing GmbH has seen the number of particularly fuel-efficient vehicles in its portfolio increase. As a result, over the past years the average CO2 emissions of newly registered fleet vehicles for key-account customers have dropped . “The Green Fleet” award has been presented annually since 2010, and recognizes ecologically responsible fleet managers. Awards were presented to the companies with the highest proportion of eco-friendly Volkswagen Group vehicles in three different fleet size categories.

### **Impact of engagement, including measures of success**

## **C12.3**

### **(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Direct engagement with policy makers

Trade associations

Funding research organizations

Other

## **C12.3a**

### **(C12.3a) On what issues have you been engaging directly with policy makers?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Focus of legislation** | **Corporate position** | **Details of engagement** | **Proposed legislative solution** |
| Energy efficiency | Support with minor exceptions | The Code of Conduct of the Volkswagen Group clearly states the necessity of of open, accountable, neutral and responsible interaction with political parties and interest groups. Dishonestly influencing policymakers and government is therefore not permitted. Two past and present examples underline the principle of open interaction with stakeholders groups: 1) Volkswagen actively supported the „National platform electromobility“ founded in Berlin (NPE), founded in 2010 in Berlin. Within the NEP, which was led by the German government and which had the central initiative for enhancing the development of electric mobility in Germany. Volkswagen for example coordinated working groups and contributed to consultations with expertise, insights and knowhow. 2) Appointment of an independent Sustainability Council: For assistance on strategic topics of sustainability and social responsibility the Volkswagen Group appointed an international Sustainability Council in September 2016. Nine internationally renowned experts from politics, science and research advise Volkswagen AG, the Group Executive Board as well as the Group Brands on the topics of sustainable mobility, environmental protection, and social responsibility as well as integrity, the future of work, and digitization. They will be independent, not obliged to follow instructions and will be equipped with far-reaching information and consultation rights, as well as rights to operate on its own initiative. In its inaugural meeting in October 2016 the Group Sustainability Council set the agenda for its work. It appointed Georg Kell, Founding Director UN Global Compact, as its chair. Its first areas of focus will be the challenges of global CO2 pollution and the corresponding regulations post 2025, plus the company's transformation process. | „National platform electromobility“ (NPE), founded in 2010 in Berlin: A pilot project coordinated by the VW Group Research function had been categorized as “Lighthouse Project” by the German Environment Ministry. This project INEES focused on intelligent grid integration of electric vehicles and provision of grid support services. The idea was that electric vehicles would form a local energy buffer of significant size that would help to stabilize the grid by offsetting fluctuations in production of wind and solar power. The project was realized in close coopertation with LichtBlick SE, SMA Solar Technology AG and Fraunhofer IWES. Later on the Volkswagen Group re-defined strategic key areas within the “Group Strategy TOGETHER 2025” and the “Roadmap E,” the most far-reaching electrification initiative our industry has ever seen. Depending on market development, our Group aims to manufacture and sell up to 3 million all-electric cars per year by 2025. At that time, we will offer our customers more than 80 new electric models, including around 50 all-electric vehicles. By 2020, we will offer our customers more than 25 new electric models and more than 20 plug-in hybrids. In just a few years’ time, then, across all brands and regions we aim to put the world’s largest fleet of electric vehicles on the road. This includes our commitment to help expand the necessary charging infrastructure, for instance through the IONITY joint venture, which is setting up 400 fast-charging stations along major routes across Europe. Our commitment to systematically prepare our plants for the age of electromobility – particularly here in Germany. And our commitment to gain the necessary know-how for cell technology in our Center of Excellence in Salzgitter. At the same time, we will secure the battery capacity we will need for our electric fleet. By 2025, we estimate that we will require 150 GWh per year. This will amount to a purchasing volume about 50 billion euros during this period, just for our volume models based on the Modular Electrification Toolkit, or MEB. To date, the contracts awarded to suppliers have a volume of some €40 billion. As an aside, these figures clearly indicate that the industrial alliance needs to make a united effort to reopen an intensive dialog on setting up battery cell manufacturing capabilities in Europe. |

## **C12.3b**

### **(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

## **C12.3c**

### **(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

### **Trade association**

econsense

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

'econsense' is an association of leading, globally active companies and organisations of German business specializing in the area of sustainable development and corporate social responsibility (CSR). Founded in 2000 on the initiative of the Federation of German Industries (BDI), the goal of econsense is to provide a dialogue platform and think tank, with the dual objectives of advancing sustainable development in business and assuming social responsibility.

### **How have you, or are you attempting to, influence the position?**

Volkswagen was involved in several project groups e.g. on 'reporting and ratings'. The results of the project groups support the goals of the organization. As an active participant Volkswagen has, like all the other members, an influence on the development of positions.

## **C12.3d**

### **(C12.3d) Do you publicly disclose a list of all research organizations that you fund?**

Yes

## **C12.3e**

### **(C12.3e) Provide details of the other engagement activities that you undertake.**

Volkswagen was an active member of the Vision 2050-project of the WBCSD. The WBCSD’s cornerstone Vision 2050 report calls for a new agenda for business laying out a pathway to a world in which nine billion people can live well, and within the planet’s resources, by mid-century. The report is a consensus piece that was compiled by 29 leading global companies from 14 industries and is the result of an 18 month long combined effort between CEOs and experts, and dialogues with more than 200 companies and external stakeholders in some 20 countries. The report features a set of agreed must haves. They represent vital developments that the report’s stakeholders hope organizations will consider putting in place within the next decade, to help ensure a steady course towards global sustainability is set. Ultimately, they are intended to provide a springboard for dialogue and debate. Must haves include – amongst others: Incorporating the costs of externalities, starting with carbon, ecosystem services and water, into the structure of the marketplace; Halving carbon emissions worldwide (based on 2005 levels) by 2050 through a shift to low-carbon energy systems; Improved demand-side energy efficiency, and providing universal access to low-carbon mobility.

Alignment with strategy

Our work with the WBCSD is consistent with our ambitious targets / our strategy on climate change. We welcome the ratification of the Paris Agreement on climate change, which aims to limit global warming to less than 2°C above pre-industrial levels. Referring to international climate agreements, our former CEO Matthias Müller was calling upon the automotive industry to ensure that all fleet CO₂ emissions “are steadily reduced to zero by 2050.”

In this context, the Volkswagen Group is currently defining the decarbonization index (DCI) as a strategic indicator which we use to measure progress. It measures products’ CO₂ emissions along the entire value chain. It is calculated by dividing our CO₂ footprint by the number of vehicles produced. It thus incorporates both direct and indirect CO₂ emissions from the individual production sites (Scope 1 and 2), as well as all other CO₂ emissions occurring throughout the life cycle of the vehicles sold – from the extraction of raw materials through the use phase to the recycling of end-of-life vehicles (Scope 3). The DCI thus makes it possible to pursue milestones in a transparent, holistic way as we make our way toward climate-friendly mobility. We are currently defining DCI target values for 2025, in consultation with the Volkswagen Group brands. The outcome should ensure that our target values contribute to the two-degree target set in the Paris Agreement concluded at the UN Climate Conference in December 2015.

## **C12.3f**

### **(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

The Corporate Sustainability Steering Committee regularly updates the Group Board of Management on issues of relevance to sustainability. The steering committee includes top managers from corporate functions, as well as representatives of the Group Works Council and brands. Its tasks include defining strategic sustainability goals and position statements, identifying key action areas and approving the sustainability report. Management indicators are used to monitor the extent to which these sustainability goals are being met. The steering committee meets regularly under the leadership of the external affairs and sustainability function.

In turn, the steering committee is supported by the sustainability office. Its duties include coordinating all sustainability-related activities within the Group and the brands. The office also handles the monitoring and coordination of sustainability ratings. Finally, it is responsible for drawing up the sustainability report and supporting the sustainability Council and its workshops. As part of the environmental and socio-political regulatory process, we also maintain an ongoing dialog with policymakers. At divisional level, the CSR project team ensures that information on current projects is regularly shared between the various sustainability experts within the Group. In addition, other project teams work across business areas on topics such as reporting, stakeholder management and sustainability in supplier relations. These coordination and working structures have also been established across the brands and are subject to ongoing development.

Other Group-wide committees, such as the Corporate Environmental and Energy Steering Group, the CO2 Steering Group, the Vehicle Recycling Steering Group and the Corporate Working Group “Life Cycle Engineering” , address a range of specialist issues.

The members / corporate representatives of the above mentioned projects and initiatives are members of the above mentioned Corporate Environmental and Energy Steering Group. Their active memberships ensure a high degree of consistency with the overall climate change strategy process.

## **C12.4**

### **(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[entire\_vw\_ar17.compressed\_Opt.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/nGXsJtKzLUOYg-tgmOn4yQ/entirevwar17.compressedOpt.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Other metrics

### **Publication**

In voluntary sustainability report

### **Status**

Complete

### **Attach the document**

[Nonfinancial\_Report\_2017\_e.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/EChyQZov6028NHDHhuq02A/NonfinancialReport2017e.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

## **C14. Signoff**

## **C-FI**

### **(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

## **C14.1**

### **(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

|  |  |  |
| --- | --- | --- |
|  | **Job title** | **Corresponding job category** |
| Row 1 | Chairman of the Board of Management of Volkswagen AG, | Board chair |